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Forest Service

Northeastern Forest
Experiment Station

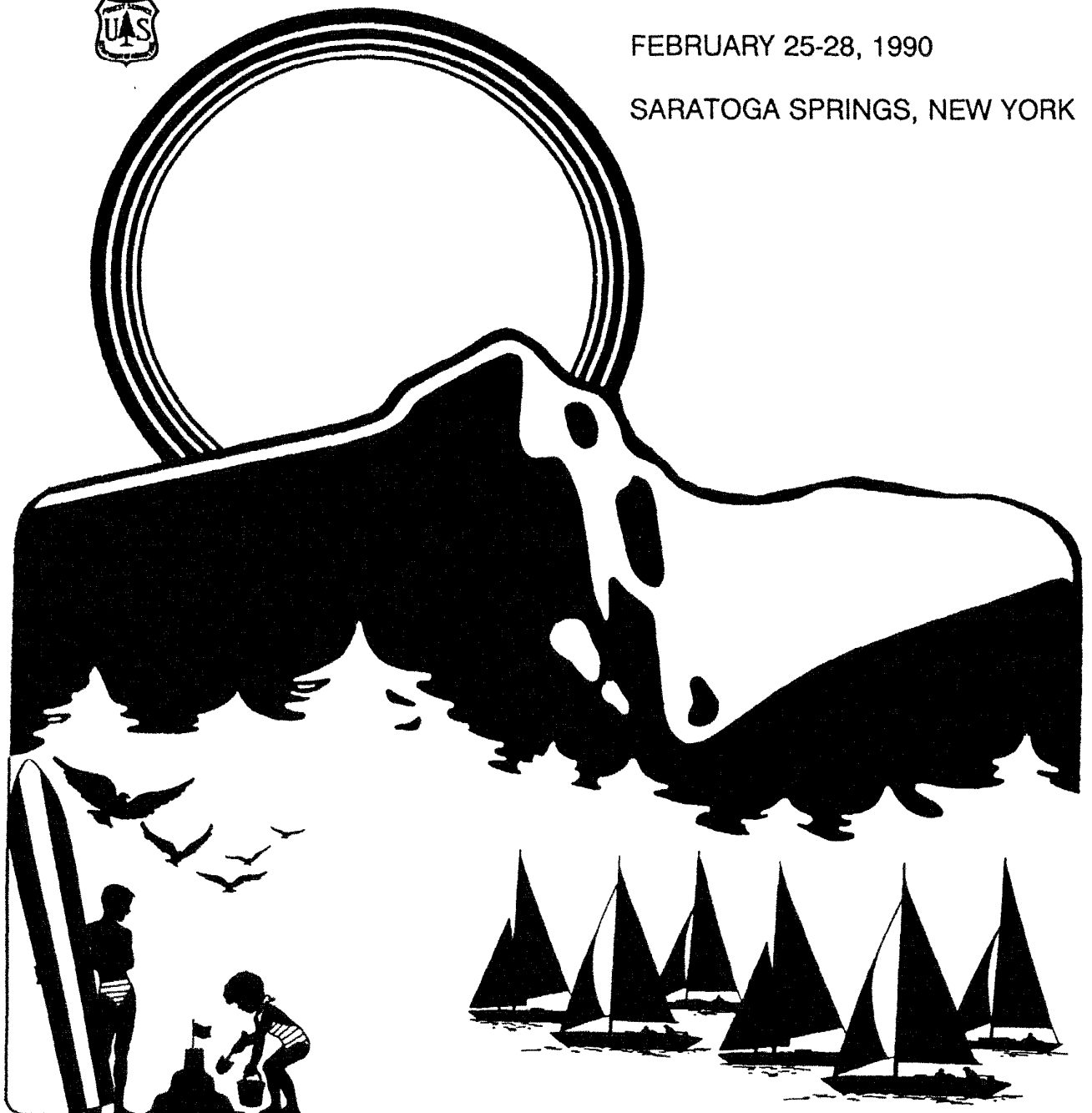
General Technical
Report NE-145



PROCEEDINGS OF THE 1990 NORTHEASTERN RECREATION RESEARCH SYMPOSIUM

FEBRUARY 25-28, 1990

SARATOGA SPRINGS, NEW YORK



NORTHEASTERN RECREATION RESEARCH MEETING POLICY STATEMENT

The Northeast Recreation Research meeting seeks to foster quality information exchange between recreation and travel resource managers and researchers throughout the Northeast. The forum provides opportunities for managers from different agencies and states, and from different governmental levels, to discuss current issues and problems in the field. Students and all those interested in continuing education in recreation and travel resource management are particularly welcome.

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The Steering Committee wishes to thank John Nelson for his assistance in developing the conference data base.

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RECREATION RESEARCH SYMPOSIUM**

FEBRUARY 25-28, 1990

State Parks Management and Research Institute

Saratoga Springs, New York

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CONTENTS

Pag

RECREATION IN THE 1990'S

Recreation in the 1990's. STEVEN H. LEWIS	1
The Challenge of Recreation Management in an Era of Increasing Environmental Stress from the Perspective of a Non-Profit Organization LAURA LOOMIS	3
State Parks 2000 WILLIAM C. FORREY	7

OUTDOOR RECREATION

The Relationship Between Quality of Recreation Opportunities and Support for Recreation Funding ROBERT E. MANNING and RODNEY ZWICK	9
Outdoor Recreation and Environmental Concern: A Further Exploration EDWARD A. BIKALES and ROBERT E. MANNING	13
Boy Scout Use of Public Lands: Implications for Communications and Management Strategies GAIL A. VANDER STOEP	19
Individual Choice Behavior in the Use of Common-Property Recreation Resources: Effects of Motivational Orientation and Multiple Resource Options DAVID K. LOOMIS	27
Utilization of Trends in Visitor Use, Facilities Available, Vehicle Registration, and License Sales as Outdoor Recreation Demand Indicators THOMAS J. CIESLINSKI	35
Public Recreation on Nonindustrial Private Forestlands (NIPF) in the 1990's JOHN J. LINDSAY	41
An Observational Study of the Social and Behavioral Dimensions of a Park Area DAVID S. SOLAN	45

TRAVEL, TOURISM AND COMMUNITY DEVELOPMENT

Rural Resident Values and Attitudes Toward Tourism RODNEY P. ZWICK	51
---	----

Community Typology Model MALCOLM I. BEVINS	57
Economic Impacts Associated with Whitewater Boating on the Upper Youghiogheny River RICHARD J. GITELSON and ALAN GRAEFE	65
Condominium Development in the White Mountains - How Will it Impact Recreation Management on the White Mountain National Forest? FREDERICK T. KACPRZYNSKI	71
Residents' Perception of Recreation Development and Land Use Within the Adirondack Park ROBERT B. BUERGER and THOMAS E. PASQUARELLO	79
The Effects of the Individual, Spatial Accessibility and Activity on Recreational Travel Demand ROBERT S. BRISTOW	87
Market Share Analysis of Selected Recreation Activities in the Northeastern United States: 1979-1987 RODNEY B. WARNICK	93

MONITORING RECREATION SYSTEMS

Effective Management of Parks and Recreation Information JAY BEAMAN, ED THOMSON and MARY L. COTTER	103
Monitoring for Quality Control in New Hampshire State Parks BRADFORD N. WILLIAMSON, JERRY J. VASKE and MAUREEN DONNELLY	111
Automated Market Information Gathering in the Canadian Parks Service GREG DANCHUK.	119

FISHERIES/WILDLIFE MANAGEMENT

The Economics of Wildlife Reintroduction THOMAS A. MORE, RONALD J. GLASS and THOMAS H. STEVENS . . .	125
Quelling Controversy Through Public Relations - Implementing a Controlled Moose Hunt DIXIE SHERROD	133

Pennsylvania Trout Fishing: A Consideration of Specialization and Social Interaction

R. J. STEELE, STEVE BURR and DEB IAICONE 139

Sportfishing in New York State: Trends Toward the Year 2010

CHAD P. DAWSON and TOMMY L. BROWN 147

BEACH AND LAKE MANAGEMENT

Norm Activation and the Acceptance of Behavioral Restrictions Among Oversand Vehicle Users

JERRY J. VASKE, MAUREEN P. DONNELLY and
ROBERT D. DEBLINGER 153

Delaware Beaches, a Valuable Resource: Perspectives of Property Owners, Resort Merchants and Relators in Sussex County, Delaware

JAMES M. FALK 161

Factors Affecting Boating Satisfaction: a Replication and Comparative Analysis

ELLEN B. DROGIN, ALAN R. GRAEFE and JOHN TITRE 167

Monitoring Daily Boating Use at a New Urban Lake

JOHN F. DWYER, HERBERT W. SCHROEDER, RICHARD L. BUCK
and DAVID MCGINTY 175

Recreation Lake Management - Aquatic Plant Removal Study

JOHN T. WATTS and ROBERT W. DOUGLASS 181

NORTHERN FOREST MANAGEMENT

Aesthetics of the Northeastern Forest: The Influence of Season and Time Since Harvest

JAMES F. PALMER 185

Factors Influencing Posting of Private Nonindustrial Forests in the Northeast

DONALD F. DENNIS 191

Passive Trail Management in Northeastern Alpine Zones: A Case Study

JOSEPH E. DOUCETTE and KENNETH D. KIMBALL 195

Attitudes and Resource Use: A Study of North Country Citizens

A. E. LULOFF., F. E. SCHMIDT and H. E. ECHELBERGER 203

RURAL RESIDENT VALUES AND ATTITUDES TOWARD TOURISM

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Demographic and economic change are becoming commonplace in rural New England. Many rural communities are experiencing increased economic and social stress as agriculture declines in importance as a source of income and as restructuring occurs (e.g., light industry moves out of rural areas) in the manufacturing sector (Murdock et al. 1987). Communities which were formerly identified with agriculture and other extractive industries now embrace the promotion of tourism to bolster eroding economies (Allen, Long, Perdue, and Kieselbach 1988). Tourism is espoused as a new source of local employment, revenues for local business, taxes for government, and an enhanced culture.

Tourism benefits are often nullified by negative impacts. Crime, congestion, price increases, disruption of traditional social structures, and displacement of community values have emerged as new sources of stress on the community. As a result, residents in some rural areas have expressed resentment toward tourism and accompanying growth. Because interactions residents have with tourists are critical to tourism development, resident perceptions of the impacts of tourism on community life should be continually assessed (Allen et al. 1988).

Past studies have examined the consequences of tourism for the host community (Pizam 1978, Rothman 1978), attitudes toward tourism by local residents (Brougham and Butler 1980, Ahmed 1986, Liu and Var 1986), and addressed the relationship between the degree/stage of development of tourism and resident attitudes (Getz 1983, Allen, et. al. 1988). Some of these studies have specifically recognized the importance of keeping in touch with the host community resident's attitudes and perceptions because of their impact on the tolerance for tourism activity (Allen, et. al. 1988). Few studies, however, have attempted to examine the antecedents to such resident's attitudes and perceptions—values.

Values are central to belief systems. They are the basis for formulating evaluative beliefs and linkages between beliefs. Unlike attitudes, values transcend objects, holding constant over many situations and objects (Heberlein 1981). An important contribution to the conceptualization of values was provided by Milton Rokeach (1973). Rokeach (1973), defines a value as "... an enduring belief that a specific mode of conduct is personally or socially preferable to an opposite or converse mode of conduct or end state of existence." He conceptualized that individuals have value systems organized around preferred modes of conduct (called instrumental values), and end-states of existence (called terminal values). Moreover, patterns of values may be inferred by ranking values independently. Through research conducted in the 1960's and early 1970's, Rokeach identified 18 terminal values and 18 instrumental values (see Table 1), which he believed were universal across individuals, cultural groups, and subcultures. By organizing (i.e., ranking) each set of values, an individual reflects his/her internalized system of values. Similarity in value systems between two or more individuals may be measured by a correlation (ρ) of their rank orderings of the values (Rokeach 1971). This congruency has been extended beyond just the realm of values. Researchers have noted that individuals with similar values exhibit similar attitudes and behavior (Rokeach 1973; Pitts and Woodside 1986). Values, thus, are conceptualized as the basic component

of cultural structure of individuals and communities; underlying perceptions, beliefs, attitudes, and behavior (Bates and Harvey 1975; Solan 1981). An assessment of residents' values, then, may provide a better blueprint for understanding the community, residents' perceptions, and their interactions with tourists.

Table 1: Rokeach Terminal and Instrumental Values

Terminal Values	Instrumental Values
A Comfortable Life	Ambitious
An Exciting Life	Broadminded
A Sense of Accomplishment	Capable
A World at Peace	Clean
A World of Beauty	Courageous
Equality	Forgiving
Family Security	Helpful
Freedom	Honest
Health	Imaginative
Inner Harmony	Independent
Mature Love	Intellectual
National security	Logical
Pleasure	Loving
Salvation	Loyal
Self-respect	Obedient
Social recognition	Polite
True Friendship	Responsible
Wisdom	Self-controlled

Methods

The purpose of this study was to explore the relationship between resident's value patterns and their attitudes toward tourism and growth and development. Secondly, the study examined differences in community value patterns between apriori defined types of communities (Bevins and Zwick 1989).

Subjects

Data was collected from a mail survey of a stratified random sample of resident households in the Northeast Kingdom region of Vermont. A non-duplicative sampling frame was constructed for each community from the Grand List (i.e., tax roles) and voter registration list. The sampling process used communities stratified by type under a method developed by Bevins and Zwick (1989); then a random sample of communities was picked

from each type. The sample of resident households was randomly selected from each selected community, proportional to the number of households in the community in relation to the total population. An initial survey was mailed to a sample of 606 households and two follow-up reminders were sent. A total of 240 useable responses were received, thirty-six surveys were returned as undeliverable, and eleven surveys were unuseable. Costs of the standardized survey instrument precluded sending a second survey instrument to all non respondents, however as a check on non respondent bias, 100 of the non respondents from the survey were mailed a follow-up survey. The 28 respondents from the follow-up survey did not differ in any appreciable way from the initial respondents on any of the variables under investigation.

Instrumentation

The survey instrument consisted of the Rokeach Value Survey (Rokeach 1973), an attitude survey, and demographic questionnaire. The Rokeach Value Survey consists of two lists of 18 values to be ranked in order of importance to the respondent. The survey has a median reliability that ranges between .78 and .80 for terminal values and .70 to .72 for instrumental values (Rokeach 1979). Others (Homant 1967, Brown 1976, Feather and Peay 1976) have verified the content validity of the survey and cross-validated the values it measures. Form D of the value survey was used in this study. This particular form uses gummed labels, allowing the respondent to arrange the values in a hierarchical pattern without having to physically write a value rank next to the value. Following a procedure used by Pitts and Woodside (1986), the value ranks were rescaled with a normal (z) transformation for analysis with parametric statistical techniques. Because terminal values are more stable and have been found to be more reflective of personal orientations (Park 1971), only terminal values were used in the analysis.

The attitude scale examined resident attitude toward tourism and growth and development in their communities. Seventeen statements about growth and development impacts were developed; respondents were asked to evaluate for each statement whether growth was having a "positive effect," "negative effect," or "neither positive or negative effect." By aggregating over the seventeen statements, an "attitude toward growth and development" score was calculated and used in the subsequent analysis. An "attitude toward tourism" score for each respondent was determined by aggregating over twelve statements assessing their degree of agreement with specified tourism impacts on their respective communities. Subjects were asked to rate their agreement with each impact on a five-point scale ranging from "strongly agree," to "strongly disagree."

A demographic questionnaire was constructed to obtain socioeconomic information about the respondent and household information which could be used in subsequent analyses. All three parts of the survey instrument were pretested. The attitude and demographic portions subsequently were refined before being mailed to the sample.

Analysis and Results

Because of the exploratory nature of the research, two questions were developed to guide the study: 1) Are resident attitudes toward tourism and growth and development related to patterns of personal values? and 2) Do communities manifest distinctive terminal value patterns?

Correlational (rho) analysis was used to explore the relationship between resident terminal value patterns and attitudes toward tourism and growth and development. The results from the Spearman correlation matrix revealed a significant relationship between the terminal values: "A comfortable life," "An exciting life," "A world at peace," "Equality," and "Wisdom," and respondent attitude toward tourism score. See Table 2. Respondents who ranked "Equality," "A world at peace," and "Wisdom," high in their value patterns generally had a more favorable attitude toward tourism. There was an inverse relationship between the values "A comfortable life," and "An exciting life," and respondent attitude toward tourism. The values "Equality," and "Wisdom" were directly related to residents' attitude toward growth and development. An inverse relation was found between respondents' attitudes toward growth and development and the values: "A comfortable life," "A sense of accomplishment," "Health," and "Social recognition."

To further explore the relationship between values and attitude toward tourism and growth, multiple regression analyses were conducted using the rescaled (z transformations) value rankings. The aggregate attitude toward tourism score was regressed on the value scale scores for "A comfortable life," "An exciting life," "A world at peace," "Equality," and "Wisdom." Although the relationship was significant ($F = 3.645, p < .001$), only 7 percent of the variance was explained. Similarly, a regression of attitude toward growth and development on the values: "Equality," "Wisdom," "A comfortable life," "A sense of accomplishment," "Health," and "Social recognition," was significant ($F = 2.86, p < .01$), but again only explained 7 percent of the variance. This exploratory analysis appears to support that resident attitudes toward tourism, growth and development are related to values of residents, but the strength of that relationship is only marginal in this study.

In order to explore whether communities have differing terminal value patterns, mean value rankings were computed for each of the six types of selected communities and for the Northeast Kingdom region. Value hierarchies for all six communities and the region were remarkably similar (see Table 3). The values "Health," "Family security," and "Freedom," were consistently ranked in the top four values for all communities. At the lower end of the rankings, the values "Exciting life," "Pleasure," and "social recognition" were consistently ranked in the bottom four positions. An interpretation of these rankings indicates that Northeast Kingdom residents display a *personal security* orientation in their values versus a *self-fulfillment* concern. Of particular significance to researchers is the stability inherent in the rankings for the value—"A world of beauty." Numerous studies have found this value to be highly correlated with environmental attitudes and consistently ranked in the 13th or 14th position in value hierarchies. The consistency of the position ranking of the value "A world of beauty," is also evident in this study.

A nonparametric version of analysis of variance (i.e., Kruskal-Wallis) was used to test whether the communities differed in their value hierarchies. Nonparametric techniques had to be used because the unit of investigation was the community rather than the individual resident. The analysis revealed a generally stable pattern of value rankings across all communities, except for the values "Family security," and "Pleasure." The apriori defined recreation community (Bevins and Zwick 1989) was differentiated from the other communities on the value "Family security"; the recreation community respondents' mean rank on "Family security," was significantly ($p < .025$) lower (see Table 4). The apriori defined agricultural community (Community 2) was significantly differentiated ($p < .05$) from the more urban community (Community 6) on the value "Pleasure." Resident respondents from the agricultural community had a significantly lower mean rank on "Pleasure." See Table 4.

Table 2: Association Between Terminal Values and Attitudes Toward Growth and Tourism
(Spearman Rank Order Correlation--rho)

Terminal Values	Aggregate Tourism Score (rho)		Aggregate Growth & Development score (rho)	
A Comfortable Life	-0.121	p=.029*	-0.188	p=.002**
An Exciting Life	-0.162	p=.007**	0.046	p=.245
A Sense of Accomplishment	-0.105	p=.057	-0.11	p=.048*
A World at Peace	0.131	p=.023*	0.041	p=.268
A World of Beauty	0.059	p=.189	0.044	p=.251
Equality	0.164	p=.005**	0.192	p=.002**
Family Security	0.033	p=.308	-0.012	p=.428
Freedom	0.031	p=.315	0.066	p=.156
Health	-0.107	p=.053	-0.112	p=.044*
Inner Harmony	0.007	p=.456	-0.008	p=.453
Mature Love	-0.102	p=.061	-0.06	p=.182
National Security	0.094	p=.078	-0.051	p=.222
Pleasure	-0.073	p=.131	-0.061	p=.182
Salvation	0.055	p=.200	0.108	p=.052
Self-respect	0.024	p=.359	0.045	p=.281
Social recognition	-0.013	p=.425	-0.126	p=.028*
True Friendship	-0.007	p=.460	0.041	p=.268
Wisdom	0.122	p=.033*	0.187	p=.002**

* Significant at alpha \leq .05

** Significant at alpha \leq .01

Discussion and Implications

The study findings indicate a relatively stable pattern of values for the Northeast Kingdom residents; consistent with stability of attitude patterns and political orientations of the region found in other surveys. Values were shown to have a marginal but statistically significant relationship to attitudes toward tourism and attitudes toward growth and development. Examination of these relationships revealed those residents with a more altruistic or societal value pattern (i.e., respondents who ranked "Equality," "A world at peace," and "Wisdom," high in their value patterns) favored tourism more than residents who rated "A comfortable life," and "An exciting life," as primary values. The concept of a "comfortable and exciting life" may be inversely related to a favorable attitude toward tourism because of residents wanting to maintain their communities at a normative level. Perhaps tourism is viewed as creating an "uncomfortable" community atmosphere.

While the Northeast Kingdom region's population is not homogeneous, community value patterns (i.e., hierarchies) depict a general consistency in values. Differences, however, were found in the recreation type community, whose residents ranked "Family security," significantly lower. Because these communities have a high level of second home ownership (i.e., sixty-two percent), and are recreation oriented, family atmosphere may be less important to the residents. The differentiation of the agricultural community (Community 2) from the more urbanized type of community (Community 6) in their rankings of the value "Pleasure," may confirm populist suspicions--rural residents are less hedonistic than those "big city folks." The relative consistency of community values of the relatively rural isolated region under study is not surprising. The region is only recently being discovered for permanent residence by out-of-staters; development pressure has been lacking in comparison to other regions in the state. The population of the region, thus, may be relatively more

Table 3: Community Value Patterns of the Northeast Kingdom Region

Northeast Kingdom	Community 1	Community 2	Community 3	Community 4	Community 5	Community 6
Health	Freedom	Health	Family Security	Health	Health	Health
Family Security	Family Security	Family Security	Health	Family Security	Freedom	Family Security
Freedom	Health	Freedom	A Sense of Accomplishment	Freedom	Family Security	Freedom
Self-respect	A World at Peace	Self-respect	Freedom	Self-respect	Self-respect	Self-respect
A World at Peace	Self-respect	A Sense of Accomplishment	A World at Peace	A World at Peace	A World at Peace	A World at Peace
A Sense of Accomplishment	Wisdom	Equality*	Self-respect	Inner Harmony	A Sense of Accomplishment	A Sense of Accomplishment
Wisdom	A Sense of Accomplishment	Wisdom*	A Comfortable Life	Wisdom	Wisdom	Wisdom
True Friendship	Equality	A World at Peace	Mature love	A Sense of Accomplishment	Equality	True Friendship
Inner Harmony	True Friendship	True Friendship	True Friendship	True Friendship	True Friendship	Wisdom
Equality	Inner harmony	A World of Beauty	National security	Mature Love	Inner Harmony	Inner Harmony
A Comfortable Life	A Comfortable Life	Inner Harmony	Inner Harmony	A Comfortable Life	National security	Equality
Mature Love	A World of Beauty	Mature Love	Wisdom	Equality	A Comfortable Life*	National Security
National Security	Mature Love	A Comfortable Life	Equality	A World of Beauty	A World of Beauty*	Mature Love
A World of Beauty	National Security	National Security	A World of Beauty	National Security	Mature Love	A World of Beauty
Salvation	Pleasure	Salvation	Salvation	An exciting Life	An exciting Life*	Pleasure
Pleasure	An exciting Life	An exciting Life	Pleasure	Pleasure	Salvation*	Salvation
An exciting Life	Salvation	Social Recognition	An exciting Life	Salvation	Pleasure	An exciting Life
Social Recognition	Social Recognition	Pleasure	Social Recognition	Social Recognition	Social Recognition	Social Recognition

Table 4: Community Mean (\bar{x}) Value Rankings for the Values "Family Security," and "Pleasure."

Value	Community 1	Community 2	Community 3	Community 4
Family Security	5.000	4.687	3.071	4.267
Pleasure	13.029	14.276	13.071	12.667

Value	Community 5	Community 6	Northeast Kingdom
Family Security	6.933	3.900	4.420
Pleasure	13.267	12.169	12.921

homogeneous in values because it is isolated. Communities of the region may not have experienced an influx of permanent residents who bring differing values to the communities of the region.

Results of the research may have implications for broader understanding of the central beliefs which pilot an resident's attitude toward tourism. Because beliefs are a part of the cultural/cognitive structure of the individual, such beliefs may be modified through education strategies. An examination of community value patterns also could have practical utility for tourism planners and developers in understanding motives of residents who are opposed to development. Often the lack of support for projects is viewed as a clash of values, yet little empirical information exists about the values of those who manifest an opposition attitude. In such situations, tourism planners may wish to emphasize basic values in which there is congruence with rural resident values. The research has shown that it is possible to discern existing value patterns among groups within a community, and a common value pattern that residents may share. Likewise, it is possible to measure changes in values (Rokeach 1979). The examination of long term changes in values (e.g., through longitudinal studies), thus, could provide a clearer understanding of the change in the cultural structure of communities that result from demographic and socioeconomic expansion related to tourism growth.

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COMMUNITY TYPOLOGY MODEL

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When Vermont was admitted into the Union two hundred years ago, the economy was monolithic—there was farming and forestry. Today, based on a community typology model, Vermont communities can be systematically classified into eight cluster types—each with a different set of needs, problems, and opportunities. Future planning efforts must not treat unlike communities as if they were similar. Wise planning will recognize community differences.

Introduction

As Vermont prepares for its Bicentennial birthday in 1991, it is appropriate to look back at development in the state. Vermont has always been a very rural state and it wasn't until 1980 that the Burlington area was classified as an MSA (Metropolitan Statistical Area). The types of communities that are found in the Burlington (Chittenden County) region are much different than communities located in more remote locations of the state. However, one cannot say that all rural communities are alike. Some rural communities have a strong agricultural base, others

a strong recreational base, still others have neither agriculture or recreation.

Development of the Community Typology Model

Recognizing community differences and the need for a systematic classification system, Bevins and Zwick completed a cluster analysis of Vermont communities in 1985-86 (Bevins 1988). Twenty-one variables describing the economics, demographics, and natural resource base of Vermont were tested. The list of variables was narrowed to 10 that could be used as surrogates for density, capacity, and growth. However, data collection with 10 variables can be a time-consuming task. A need was seen to develop a classification system that used fewer variables.

A typology model was developed based upon findings of the earlier cluster analysis model. The new model incorporated only two variables: (1) property values disaggregated into class of property and (2) density of population relative to land area.

Rather than using the SAS cluster analysis computer program that we had used in 1985, we simply entered property values and population density into a SuperCalc 5 spreadsheet and used the data management option to perform boolean extractions of data sets. The selection criteria used are shown in Table 1. This procedure was mutually exclusive—no community could fall into more than one category. Three percent of Vermont communities did not fit the model—unique local circumstances prevented them from falling into any of the eight predetermined types.

Table 1. Community typology selection criteria.

Community type	Population density	Value of property in class			
		Residential	Commercial	Vacation	Farm
Residential commercial center	Top 25	Top third	Top third	Not top third	NA
Residential limited commercial	Top third	Top third	Top third	Not top third	NA
Residential noncommercial	Top third	Top third	Not top third	Not top third	NA
Residential rural	Middle third	Not top third	NA	Not top third	Not top third
Recreation commercial	NA ^{a/}	NA	Top third	Top third	NA
Recreation noncommercial	NA	NA	Not top third	Top third	NA
Agricultural	NA	Not top third	Not top third	Not top third	Top third
Lowest population density	Bottom third	Not top third	NA	Not top third	Not top third

^{a/} NA = Not considered in the evaluation.

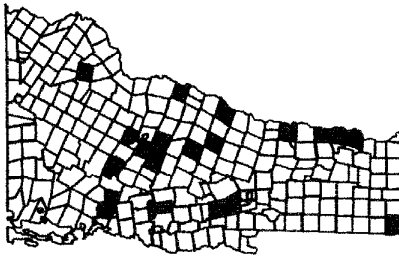
Using Atlas Graphics, the community typology results were plotted on a map in an attempt to identify geographic regional clusters. The eight maps are shown in Figure 1. From this graphic analysis, the following conclusions can be made. Residential commercial centers are primarily the cities and larger villages of the state. The greatest concentration is found

in Chittenden County. Twenty towns fall into this classification--8% of all towns.

An equal number of communities fell into the residential limited commercial category. These communities had the same amenities as the residential commercial centers but were not quite as densely populated.

Figure 1.--Vermont's eight community types, 1987.

RESIDENTIAL LIMITED COMMERCIAL



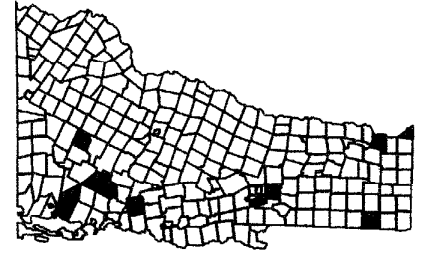
RESIDENTIAL RURAL



RESIDENTIAL COMMERCIAL CENTERS



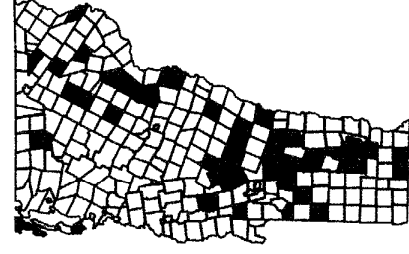
RESIDENTIAL NONCOMMERCIAL



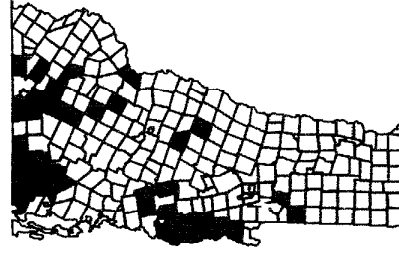
RECREATIONAL COMMERCIAL



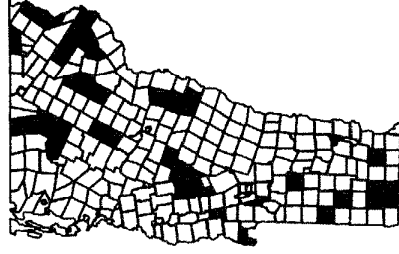
RECREATIONAL NONCOMMERCIAL



AGRICULTURAL



LOWEST POPULATION DENSITY



Eleven more towns fell into the residential category, but had very little commercial property—these were labeled residential noncommercial. For the most part, these communities were located adjacent to other residential towns with commercial development.

Twenty-five sparsely populated remote communities with relatively little development were classified as residential rural. Geographically, the communities were well dispersed, with minor concentrations in central and northeastern Vermont.

The recreational communities fell into two classes—those with commercial development and those without. The former group was labeled recreational commercial, the latter group recreational noncommercial. Combined, these two groups account for about one-third of all Vermont towns. The recreational commercial group were primarily located adjacent to the larger ski resorts, while the noncommercial group were located adjacent to larger water bodies or one or more towns removed from ski areas.

The seventh group represents farming communities and were labeled agricultural. As one would expect, these towns were primarily in Addison, Franklin, and Orleans Counties. Thirty-nine towns (16% of the state) fell into this classification.

The eighth group were simply called lowest population density communities—they were in the bottom third of the state in terms of population density, and had no other type of development. Many of these towns were primarily forested. Forty-two towns (17%) fell into this group. There were concentrations in northeastern Vermont and in the rugged mountainous areas of south and central Vermont.

In terms of residential property value, 36% of the state total is in residential commercial centers—yet these represent only 8% of Vermont communities (Table 2). In like manner, 53% of all commercial property value is found in these 20 communities. The second greatest concentration of commercial properties was in the recreational commercial group, where 29% of the value was found. These two groups, representing 23% of Vermont communities, contain 82% of the value of all commercial property.

The two recreational groups, representing about one-third of Vermont towns, contain 85% of the value of all second home properties. The other six types of communities each had less than 5% of total second home value.

The agricultural communities (16% of the state) contain 38% of the total farm value in Vermont. Seventeen percent of total farm value is in the recreational commercial communities and 12% in the recreational noncommercial group.

Several measures of economic activity were related to community type (Table 3). More than three-fifths of all retail sales in Fiscal Year 1988 (July 1987-June 1988) were made in the residential commercial centers. An additional 19% of retail sales were made in communities classified as recreational commercial. These two community types were responsible for 84% of all meals and rooms revenue in the same state fiscal period.

In Vermont there has been a great deal of discussion about the impact that development has had on open land. About one-third of all open land sales that were made in the first 10 months of 1988 took place in recreational commercial communities (Table 3). Another 16% were made in recreational noncommercial towns.

Table 2. Percent of total state value represented by each community type.

Community type	Towns	Property classification			
		Residential	Commercial	Second home	Farm
- - - % of state total found in each community type, 1987 - - -					
Residential commercial center	8	36	53	1	7
Residential limited commercial	8	12	9	2	9
Residential noncommercial	4	6	1	1	6
Residential rural	10	4	1	3	5
Recreational commercial	15	22	29	64	17
Recreational noncommercial	19	9	3	21	12
Agricultural	16	6	2	4	38
Lowest population density	17	3	1	4	4
Unclassified	3	2	1	0	2
Total state	100	100	100	100	100

Table 3. Comparison of community types on economic activity.

Community type	Towns	Economic activity measurement			
		Total retail sales FY 1988	Rooms/meals sales FY 1988	All open land sales (10 mos. 1988)	All open land sales (10 mos. 1988)
		- % of state total found in each community type, 1987 -			
					Price/acre
Residential commercial center	8	62	44	14	\$6,210
Residential limited commercial	8	10	7	12	2,156
Residential noncommercial	4	2	1	5	2,754
Residential rural	10	1	1	6	801
Recreational commercial	15	19	40	32	4,035
Recreational noncommercial	19	3	4	16	1,247
Agricultural	16	2	2	10	784
Lowest population density	17	1	1	5	878
Total state	97 ^{a/}	100	100	100	\$1,535

^{a/}Three percent did not fit model (unclassified).

The price per acre of open land sold in 1988 was highest in residential commercial centers—\$6,210 per acre. Land prices were relatively high in all of the residential type communities—primarily because of small lot sizes. The second highest priced sales were in recreational commercial communities—\$4,035 per acre. Open land sales in agricultural communities represented only 10% of the total and price per acre averaged just

\$784 per acre—about half of the state average of \$1,535 per acre.

Personal income reported in 1986 was above average in all types of communities except agricultural and lowest population density communities (Table 4). Income was highest in the residential noncommercial communities (these areas tend to include high value housing and exclude many types of commercial activity, possibly by choice).

Table 4. Community types, personal income, and property taxes.

Community type	Towns	Income index, 1986	Residential property tax index, 1987	Residential tax burden
	%	- - - Median = 100 - - -		Tax ÷ income
Residential commercial center	8	110	126	115
Residential limited commercial	8	111	110	99
Residential noncommercial	4	126	109	87
Residential rural	10	105	107	102
Recreational commercial	15	108	77	71
Recreational noncommercial	19	101	85	84
Agricultural	16	92	106	115
Lowest population density	17	93	91	98
Total state	97 ^{a/}	100	100	100

^{a/}Three percent did not fit model (unclassified).

Residential property taxes were highest in residential commercial centers, a factor associated with higher community service demands. All residential community types had a higher tax index than all others except agricultural towns. The lowest population density communities had low residential property taxes—few people asking for few services. The two recreational community types had, by far, the lowest residential property taxes—this was related to the large amount

of nonresident property ownership and little burden on the school system.

Residential tax burden is calculated by dividing the tax index by the income index and multiplying by 100. Residents of residential commercial centers and agricultural communities are feeling the burden of property taxation more than residents of other communities. Advocates of tax revenue sharing point to this disparity; however, tax

revenue sharing is not appropriate until service quality and delivery is the same for communities that would share such resources.

Community Typology Change Over Time

To measure how much change takes place in community type over time, the exact same procedures were applied to 1970 population density and property values. The change in the composition of the two recreational community types is shown in Figure 2. Each community that moved into, or out of, a recreational type is described on the map, along with the factors associated with the shift.

While there were some changes into and out of specific community types, there were no drastic shifts in the 17-year period. Permanent shifts take place gradually. This is fortunate, as it lets communities plan for a new economic or social environment gradually. When planning is done on a gradual basis, there are fewer errors made in the planning process.

Conclusions

Sound long-range planning for a community requires a clear understanding of where the community has been and where it is going. It has been the objective of this project to clarify that understanding. The development of a typology model that successfully employs only two variables

(property values and population density) is a significant breakthrough in community analysis.

Communities with similar characteristics need guidelines appropriate for that community type. Communities with different characteristics need a different set of operating guidelines. A uniform state mandated policy for all communities may be appropriate for only a fraction of those communities. We have the tools to analytically classify communities in an objective manner. Let's use these tools to help plan for the future. By doing so, the individual towns, and the state as a whole, will be a better place to live.

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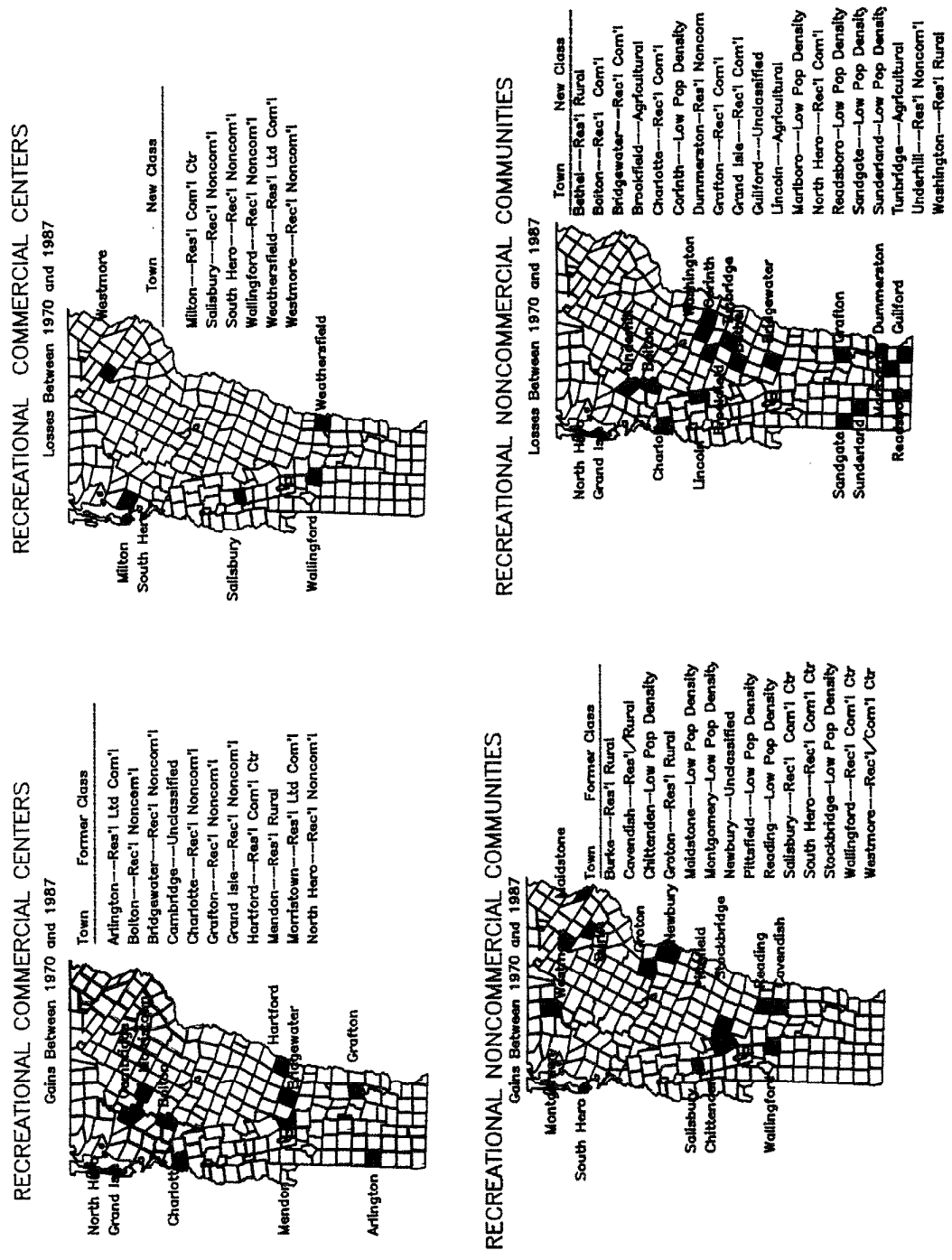
Credits

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Figure 2.--Recreational community gains and losses experienced between 1970 and 1987.



Economic Impacts Associated With Whitewater

Boating on the Upper Youghiogheny River

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This paper describes the economic impact of whitewater boaters using the Upper Youghiogheny River. Although the economic impact was not large when compared with other outdoor recreation activities, nearly all monies brought into the local area were new monies that would not have been generated otherwise.

Introduction

To date, little information exists to characterize the recreational use of the Upper Youghiogheny River and the impacts resulting from this use. The information reported in this paper was part of a larger study designed to generate data that would allow the Maryland Department of Natural Resources to create a management plan for the river corridor that encompasses the Upper Youghiogheny River. Study objectives, besides determining the economic impact of the river users, included 1) to identify hydrological characteristics of the river, 2) to examine existing and potential recreational uses of the river corridor, 3) to assess the resources available to respond to emergency situations, 4) to identify the optimum carrying capacity of the river section, and 5) to evaluate various management alternatives of the recreational activities within the river corridor.

The study section of the Upper Youghiogheny River is approximately 8.5 miles long and runs from the Sang Run Bridge to the town of Friendsville in Garrett County in Western Maryland. The river section is considered one of the premier whitewater rivers in the eastern United States and contains numerous closely-spaced class IV and class V rapids. During 1988, it was estimated that 6,400 rafters and 3,600 kayakers ran this river section which has been designated as a wild and scenic river under the Maryland Scenic and Wild Rivers Act. All the kayakers are advanced boaters and nearly all the rafters have had whitewater experience on other rivers.

Whitewater boaters using the Upper Youghiogheny River have an economic impact on both the local county and the state of Maryland. In addition to the dollars paid directly to the local rafting companies, boaters may spend money on lodging, food and beverages, entertainment, and auto-related items. While in the area, the boaters may also spend money in other local retail establishments for various items, such as souvenirs, boating equipment, and clothing. Money is also pumped into the local economy by the outfitters, who conduct trips down the Upper Yough. These expenditures may be for local labor (raft guides), meals for customers, supplies, or local services (insurance, legal fees, etc.).

This paper presents an assessment of the economic benefits associated with whitewater boating on the Upper Youghiogheny River during 1988.

Methodology

A sample of whitewater boaters were surveyed both before and after they had run the portion of the Upper Youghiogheny River between the Sang Run bridge and the town of Friendsville, Maryland. These individuals were then asked to take part in a more extensive questionnaire that would be sent to them. One section of this follow-up questionnaire dealt with the expenditures that these individuals had made during their trip to the Upper Youghiogheny River. Each respondent was asked how much he or she had spent on goods and services in various expenditure categories and where the expenditures had taken place, i.e., within Garrett County, somewhere else in Maryland, or outside of the state of Maryland. If the individual shared expenses with another individual, then the expenditures were to be divided by the number of individuals in that group. For example, if two individuals shared a room, the respondent was asked to list only half of the room expenses. A map was included in the questionnaire to help respondents decide where a particular expenditure was made.

After the initial survey, each individual received a follow-up postcard and two additional questionnaires were sent to those who had not responded. The response rate for rafters was 71 percent and the response rate for kayakers was 82 percent.

Estimates of the total number of boaters using the river were based on reports of the number of rafters served by the commercial outfitters operating on the river and patterns of boating use as identified through field observations by study personnel during the late summer and fall of 1988. An assumption had to be made that the use patterns observed in late summer and fall were representative of those for the entire boating season.

The Maryland Scenic and Wild Rivers Program had the names and addresses of the 76 property owners located in the study corridor. Each of these owners was sent a questionnaire which contained a series of questions seeking information on seven different areas of concern, one of which was their perception of the Scenic and Wild River designation on their property values. The response rate for this sample was 62 percent.

Economic Benefits Attributed Directly to the Whitewater Boaters

An important consideration in economic impact studies is whether or not the individual would have made the expenditure anyway. Approximately 93 percent of the rafters and 89 percent of the kayakers were not residents of Maryland. The results indicated that 84 percent of the kayakers and 91 percent of the rafters visited Garrett County for the primary reason of running the Upper Youghiogheny River. Other reasons that were mentioned for visiting Garrett County included visiting friends, wanting to get away, running a nearby river, the Gauley festival, and just passing through.

The results in Table 1 show the percentages of rafters and kayakers that made each type of expenditure. Nearly 9 out of every 10 rafters (88 percent) in the sample had eaten in a restaurant in Garrett County, and over three-fifths of these individuals (62 percent) had bought additional food and beverages and had made auto-related expenditures. Over half (53 percent) paid for some type of overnight accommodation in Garrett County. The rafters also had an impact on the local

retail market. One-fifth of the rafters bought clothing or equipment related to their trip in Garrett County and one-third purchased some other type of retail item. The majority of expenditures in each category were spent within Garrett County.

Table 1
Percentage of Rafters and Kayakers Making a Particular Type of Expenditure by location

Expenditure	Rafters (N=278) location of expenditure		
	Garrett	MD	Out-of-State
Restaurants	88%	22%	46%
Food and Beverages	62%	16%	30%
Lodging expenses			
Hotel/motel	33%	4%	20%
Camping	17%	2%	12%
Other	3%	0%	3%
Night Clubs bars, etc.	28%	4%	18%
Other entertainment	8%	3%	5%
Clothing and equipment	20%	4%	15%
Other retail purchases	33%	7%	15%
Auto expenses	62%	21%	54%
Other expenses	11%	5%	8%

Expenditure	Kayakers (N=203) location of expenditure		
	Garrett	MD	Out-of-State
Restaurants	81%	22%	39%
Food and Beverages	77%	10%	27%
Lodging expenses			
Hotel/motel	4%	<1%	4%
Camping	16%	3%	18%
Other	1%	0%	0%
Night Clubs bars, etc.	18%	<1%	8%
Other entertainment	4%	1%	5%
Clothing and equipment	10%	2%	15%
Other retail purchases	19%	4%	9%
Auto expenses	72%	22%	42%
Other expenses	6%	<1%	4%

The vast majority of kayakers (81 percent) also ate in Garrett County restaurants. Kayakers were more likely to purchase food and beverages (77 percent) and make an auto-related expenditure (72 percent) than their rafting counterparts. Kayakers were less likely to pay for overnight accommodations (21 percent) than rafters, and were less likely to make retail purchases of any kind.

The results in Table 2 show that within Garrett County, rafters and kayakers averaged spending the most money in restaurants (\$21 and \$17 respectively). The next largest expenditure for rafters in Garrett County was for hotel/motel accommodations, while the next largest expenditure for kayakers was auto expenses. Although fewer kayakers than rafters made a clothing or equipment related purchase, it is interesting to note that the average amount spent by kayakers was significantly higher. This is probably due to the specialized equipment that kayakers use and the fact that both high-quality kayaking paddles and kayaks can be purchased in Garrett County. Both rafters and kayakers spent a significant amount on food and beverages outside of restaurants.

Table 2
Average Expenditures by Type of Boater by location

Expenditure	Rafters (N=278) location of expenditure		
	Garrett	MD	Out-of-State
Restaurants	\$20.78	\$7.03	\$14.78
Food and Beverages	10.61	3.67	6.94
Lodging			
Hotel/motel	17.84	1.96	7.68
Camping	2.50	0.21	2.32
Other	0.52	0.00	.33
Night Clubs, bars, etc.	5.61	1.81	4.15
Other entertainment	1.39	0.80	2.06
Clothing and equipment	5.50	0.62	6.36
Other retail			
store purchases	5.36	1.36	3.44
Auto expenses	13.41	6.26	14.37
Other expenses	6.75	1.58	5.11
Total	90.27	25.30	67.54

Average spent on outfitter services = \$80.83
Total spent regardless of where * \$263.94

Expenditure	Kayakers (N=203) location of expenditure		
	Garrett	MD	Out-of-State
Restaurants	\$16.77	\$3.10	\$12.73
Food and Beverages	12.27	1.08	7.91
Lodging			
Hotel/motel	1.85	0.34	3.25
Camping	1.94	0.27	2.38
Other	.21	0.00	0.00
Night Clubs, bars, etc.	2.98	0.05	1.59
Other entertainment	.47	0.15	0.70
Clothing and equipment	9.44	1.47	18.42
Other retail			
store purchases	2.06	0.52	4.13
Auto expenses	12.34	5.08	16.67
Other expenses	0.98	0.05	1.01
Total	61.31	12.11	68.79

Average spent on outfitter services = \$4.19
Total spent regardless of where * \$146.40
* Includes outfitter services

Not including the amount spent on guide and raft services, the results in Table 2 indicate that, during their trip, rafters spent an average of \$90 and kayakers spent an average of \$61 within Garrett County. Rafters spent an additional \$25 and kayakers spent an additional \$12 within the state of Maryland. Approximately 78 percent of the rafters' average in-state expenditures and 84 percent of the kayakers' average in-state expenditures were made within Garrett County.

Overall, rafters spent an average of \$264 during their entire trip (this includes the amount spent on raft and guide services) and kayakers spent an average of \$146. A study of the Kennebec River in Maine in 1981 found that a river user there spent an average of \$175 (White and Kezis, 1983). Based on the consumer price index, this would be equivalent to \$220 in 1988 dollars. That study also found an average expenditure of \$195 on the Penobscot River in 1981, which would be equivalent to \$245 in 1988 dollars.

Table 3 shows the total expenditures made by each type of boater. The figures were derived by multiplying the average expenditure per category in Table 2 by the estimated number of users in 1988. The total direct impact on Garrett County, excluding the cost of the raft trip, was \$578,000 for rafters and \$221,000 for kayakers. The total direct impact on the state of Maryland was \$740,000 for rafters and \$264,000 for kayakers.

Table 3
Estimated Total Spending For All Rafters and Kayakers for 1988 Boating Season*
(in thousands)

Rafters N=6400 **			
Expenditure	Garrett	MD	Out-of-State
Restaurants	\$133	\$45	\$95
Food and Beverages	68	23	44
Lodg expenses			
Hotel/motel	114	12	49
Camping	16	1	15
Other	3	0	2
Night Clubs,bars,etc.	36	12	27
Other entertainment	9	5	13
Clothing and equipment	35	4	41
Other retail purchases	34	9	22
Auto expenses	86	40	92
Other expenses	43	10	33
Total ***	\$578	\$162	\$432

Total spent in Maryland \$740 for rafters

Table 3 (continued)

Kayakers N=3600 **			
Expenditure	Garrett	MD	Out-of-State
Restaurants	\$60	\$11	\$46
Food and Beverages	44	4	28
Lodg expenses			
Hotel/motel	6	1	12
Camping	7	1	9
Other	< 1	0	0
Night Clubs,bars,etc.	11	< 1	6
Other entertainment	2	< 1	3
Clothing and equipment	34	5	66
Other retail purchases	7	2	15
Auto expenses	44	18	60
Other expenses	4	< 1	4
Total ***	\$221	\$44	\$248

Total spent in Maryland \$265 for kayakers

* Does not include money spent for guide and raft service, which was approximately \$517,000.

** Total number of rafters and kayakers in 1988

*** Numbers may not add up to totals due to rounding

The direct expenditures made by rafters and kayakers (excluding money paid to outfitters) within Maryland during 1988 were estimated to have exceeded one million dollars. In addition, more than one-half million dollars was spent on commercial outfitting services. Three outfitters operate within the state of Maryland (all three are located within Garrett County). Based on figures provided by all outfitters operating on the Upper Yough in 1988, it is estimated that these three outfitters accounted for 42 percent of those paying for raft and guide services. Thus, an additional \$229,000 were spent within Maryland (specifically Garrett County) for guide and raft services, increasing the total direct impact on the county to \$1,028,000 and the overall impact on Maryland to \$1,233,000.

It is noteworthy that the amount of money Upper Youghiogheny boaters spent outside of Maryland totaled almost another million dollars (\$996,000. This total includes \$680,000 in direct expenditures by rafters and kayakers plus \$316,000 paid to out-of-state outfitters (or 58% of the total amount spent for outfitter services).

As mentioned previously, the vast majority of boaters indicated that they came to Garrett County for the primary reason of running this section of the river. This is one indication that the dollars would not have been spent in the area if the resource were not available. Another indication of whether or not the expenditure would have been made without the presence of the resource is the origin of the boater. It could be argued that expenditures made by someone from Garrett County who boated on the Yough would have been made regardless of whether or not that individual went boating. For example, the individual might have gone out to dinner anyway or purchased gasoline for his or her vehicle.

The results of the present study indicate that this is not the case for either Garrett County or the state of Maryland. For example, of the \$250,000 spent by boaters within Maryland on restaurants, \$225,000 were "new" monies brought in by out-of-state visitors. Of the \$1,004,000 spent by rafters and kayakers in Maryland, \$902,000 was contributed by people living outside of the state. This

expenditure pattern is even more pronounced in Garrett County. Nearly 98 percent of all boaters were not residents of Garrett County. Thus, nearly the entire local economic impact was caused by nonlocal residents.

In addition to this direct impact, there is also an additional economic impact due to what is called the multiplier effect. For example, part of each dollar paid by a boater or outfitter to a local restaurant is re-distributed to employees and other businesses. These employees and other businesses then buy additional goods and services within the local economy. The multiplier represents the number of times that an average dollar turns over within a specific area. Multipliers for the state of Maryland (according to the Department of Economic and Employment Development) range between 1.6 and 2.4 depending on a number of factors, such as the extent to which the local area is dependent on outside areas for goods, services, and its labor pool. Thus, a conservative estimate of the total direct and indirect economic impact for the state of Maryland from non-state residents was \$1,443,000 ($1.6 * \$902,000$).

Economic Impact of Rafting Companies

Each of the ten rafting companies officially operating on the river during 1988 was asked to estimate the amount of money the company spent during 1988 on goods and services in various categories within Garrett County and within the state of Maryland. Of the ten companies that provided reports to the Maryland Department of Natural Resources regarding the number of their customers during 1988, eight companies responded to our request for information. These eight companies accounted for approximately 80 percent of the customers that ran the river during 1988.

The estimates provided by the companies were used to get an average expenditure per customer for each of the expenditure categories. These averages were then used to get estimated expenditure totals for the two nonreporting companies. The results indicated that the outfitters spent an estimated \$193,000 in Maryland during 1988. Nearly 92 percent of this amount was spent within Garrett County.

Three of the ten raft companies maintain operations within Garrett County. These three companies accounted for approximately 42 percent of the total number of individuals that ran this section of the Upper Youghiogheny River during 1988. Although these three outfitters accounted for less than 50 percent of the whitewater rafters, these companies accounted for the majority of the expenditures made in Garrett County, especially in the case of personnel.

The rafting companies spend their money on a wide range of services, from advertising to legal. The largest expenditure (\$79,000) was for personnel, which represented nearly 41 percent. This is not surprising considering there is one raft guide for every three customers. The next highest amount was spent on food expenditures. All the reporting companies indicated they had purchased food locally, with the exception of one company that reported no expenditures within the state of Maryland. During 1988, these outfitters indicated that they paid over \$17,000 in taxes. Local individuals and businesses benefited from put-in and take-out fees that totaled approximately \$10,000.

Land Values

The property tax base of Garrett County has risen from \$207 million in 1979 (Maryland Department of Economic Development) to \$346 million in 1989 (Garrett County Office of Assessment). Although the increase in value reflects changes due to the impact of inflation, most of this increase can be attributed to the rapid rise in land values surrounding nearby Deep Creek Lake. According to local realtors, land in the Deep Creek area now sells for up to \$125,000/quarter acre, if it can be found.

Land transactions occurring during the last ten years were examined. In 1979, two parcels located along the river corridor changed hands. The first, a 100 acre parcel, sold for \$917 an acre and the second, a 34 acre parcel, sold for \$2,177/acre. Records were found for three transactions which occurred between 1979 and 1987. These tracts sold for a low of \$99/acre to a high of \$1,619/acre.

Records were found for eight transactions made during 1988 and 1989. Only one parcel showed a significant increase in the cost per acre above the 1979 values. Although the records indicated an unimproved building on the land, the 2.71 acre tract sold for \$61,500. Of the remaining six transactions, five were priced between \$699/acre and \$2,826/acre. The remaining property sold for \$5,164/acre.

According to Garrett County Realtors, there were three properties located in the corridor area that were being offered for sale as of August 31, 1989. Two of these properties were located on the river but were not within the officially designated wild river corridor. The first was a 1.5 acre piece of land. The asking price for this tract was \$8,000. The asking price for the second tract, 2.93 acre of land, was \$28,000. The third tract consisted of 368 acres, 80 of which are located in the official river corridor. The asking price for this tract averaged \$1,478/acre.

One tract, no longer on the market, but located in the river corridor, backed up to the river and had a mobile home located on the property. The asking price for this 5 acre piece of land was \$35,000 or \$7,000/acre. According to local realtors, the average selling price of rural land in the county ranges between \$8,000 to \$10,000/acre, depending on the suitability of the land for farming.

Although the corridor is considered to be a slow market in terms of property sales, one local realtor attributed this more to the size of the acreage, rather than the presence of the river. Most of the tracts in this area are large, and the owners have seemed reluctant to break up holdings. This realtor did feel that having state land bordering a property would add to the perceived value of a piece of property, regardless of where it was located.

Land owners were asked in the land owner survey to indicate how they felt the value of their property had been affected by the wild river classification. Of the 70 percent of landowners who responded, 24 percent felt the land had increased in value, 43 percent felt there was no change, and 33 percent felt their land had decreased in value as a result of the wild river designation.

Further Economic Development Related to Whitewater Boating

As the economic impact information indicates, there are a number of existing businesses within Garrett County

that owe all, or at least a substantial part, of their existence to whitewater boating on the Upper Youghiogheny River. The three rafting companies operating within Garrett County are the most obvious businesses relying on the Upper Youghiogheny for their existence. However, as the previous information indicated, local restaurants, service stations, convenience stores, bars, the local motel, etc., also benefit from the whitewater boaters. One local equipment supplier provides rafts for at least three of the outfitters operating on the Upper Yough.

The potential for further expansion of these existing industries appears limited for a number of reasons. First, in 1989, the number of outfitters operating on the Upper Yough and the number of boaters each operator could serve on a given day were regulated by the Maryland Department of Natural Resources. The established use limits are below the current capacity levels of the outfitters presently operating on the river. On the other hand, the number of customers observed on the river during 1988, when no use limits were in effect, only rarely exceeded the maximum of 72 imposed by the 1989 regulations. Although the ultimate effect of these or future regulations on the economic viability of these rafting companies is not known, it would not appear economically feasible for new rafting companies to operate in this environment, even if the regulations were relaxed. Likewise, it appears that other existing businesses, such as restaurants, have excess capacity that could handle additional demand for their services. Even if they couldn't, facilities around Deep Creek Lake could meet the anticipated additional demands related to river recreation.

Even without any restrictions, there are several constraints which may act to limit growth in the numbers of boaters using the Upper Yough. Although interest in whitewater boating appears to be increasing, the Upper Yough is a dangerous river requiring advanced skill levels, even among rafters. Thus, the potential demand for the river is limited to those who pursue the sport on a serious level (for those seeking only a "whitewater experience," several other nearby rivers are available at a lower cost).

Another constraint is the unpredictable nature of the boating season, which usually runs from the beginning of April to the beginning of November. Varying climatic conditions can greatly influence the amount of opportunity to run whitewater trips on the Upper Yough. The boaters also rely on hydro-power water releases from the Deep Creek Dam. In the past, these releases have not always occurred on a regular basis, nor have the release levels been very predictable. Thus, operating a business that is dependent on the Upper Yough, at the very least, is a risky proposition.

One area that does look promising is the production of life jackets and raft paddles. At the present time, the nearest outlet for paddles is in Michigan, and life jackets come principally from Idaho and Alabama. Considering the amount of whitewater boating that occurs within a one hour drive of Friendsville, this could be a viable proposition. A campground might also be a viable economic alternative. There is a Corps of Engineers Campground located near Friendsville, but many of the boaters presently use a campground located in West Virginia.

Conclusions

The total number of whitewater users on the Upper Yough in 1988 was not large (10,000) compared to visitation levels on other whitewater rivers. These whitewater users

had a combined estimated direct economic impact of about \$1 million on Garrett County and \$1.2 million on the state of Maryland. Nearly 100 percent of the expenditures made in Garrett County were made by nonlocal residents, and nearly 90 percent of the expenditures made in the state were made by non-Maryland residents.

It is important to note that approximately one million dollars was spent outside the borders of Maryland. Although it was beyond the scope of this study, further research could help to indicate what part of these expenditures could be captured by the state of Maryland and at what cost. For example, some of the users of the Upper Yough stay overnight at campgrounds in West Virginia. The question remains as to the economic viability of developing additional campgrounds within Garrett County. Also, it may be possible to increase clothing and equipment sales within Garrett County through additional efforts to make users aware of what is available in the county. This applies to other attractions as well.

It does not appear that the wild and scenic river classification has had much of an impact on the price of land located within the corridor. The price of property is determined by many factors, so it is dangerous to make generalizations based on a limited number of individual transactions. The transactions that were documented in this study, however, did not indicate any significant increase or decrease in the price of land within the designated corridor during the last 10 years.

Decisions made by the Maryland Department of Natural Resources will obviously impact the amount of economic benefits that will accrue from whitewater boating on the Upper Yough. For example, an upper limit on the number of rafters was established for the 1989 boating season. The information collected in this study provides a way of determining the economic impact that each rafter has on the local and state economy and thus can be used in figuring the potential economic impact of various projected use levels.

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CONDOMINIUM DEVELOPMENT IN THE WHITE

MOUNTAINS - HOW WILL IT IMPACT RECREATION

MANAGEMENT ON THE WHITE MOUNTAIN NATIONAL FOREST

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Nearly ten thousand condominiums occupy adjacent and intermingled private lands in the White Mountain National Forest. A close on-the-ground look at the situation, interviews with Town officials, and a mail questionnaire were used to study the situation. Alpine ski areas proved in many cases to be the nucleus for condominium development when conditions for economic growth are present. Nearly all the condominium owners sampled came from New England. Many of the owners proved to be family groups. They were well educated with correspondingly high income levels. It appeared the owners generally agreed with the concept of a working, multiple use forest although they had some important exceptions. The condominium owners rarely became involved with outdoor forest related activities. One exception was alpine skiing, an artifact of the attraction of ski areas for condominium development. The naturalness of the forest was extremely important to them.

Introduction

The White Mountain National Forest is a 763,000 acre block of public land in north-central New Hampshire and western Maine, about 130 miles north of Boston. Residents of the Boston Metropolitan area can travel by Interstate to the north end of the Forest in less than three hours.

Topography, scenic quality, location, and history have combined to make the White Mountains an important year-round recreation resource center for the New England and Mid Atlantic area. The area has been used for various outdoor pursuits for more than 100 years. The White Mountain National Forest now serves almost 6 million visitors a year.

Condominium development near the boundaries of the White Mountain National Forest is symbolic of a greater national concern of development spreading to and affecting public lands. It is changing the natural scene of the White Mountains to an urban setting. This concern is more than visual, there will also be impacts on managing these lands.

During the years 1980-85, New Hampshire began a period of rapid population growth - twice the national rate. The State is expected to grow an additional 26 percent by the year 2000. The number of dwellings in the State increased by 50 percent from 1979 to 1984. In 1985, nearly 18,000 building permits were issued (remember, New Hampshire is a small state). Although growth has slowed, the effects of past development have not diminished.

This phenomenal growth began in southern New Hampshire, but it has reached the edge of the White Mountain National Forest in the central part of the State. Thousands of new condominiums, both permanent and seasonal, now occupy adjacent and intermingled private lands of the White Mountain National Forest. Some of the construction (often with no local "setback" regulation) literally encroaches onto public land.

This surge of condominium development, in addition to changing the natural scene, has brought what is assumed to be a new public into the White Mountains. This public is viewed as affluent, well educated, and oftentimes influential. This new group has had little participation in the Forest Planning process. They may not understand the principles of balanced land management embodied in the Plan; they may not realize that recreation is only one part of this balanced use.

This situation must be fully defined and understood if high recreation outputs with a relevant, quality mix of activities and experience opportunities in an integrated resource management context are to be maintained.

Growth Areas

Although it is easy to see the areas of growth on the Forest, a systematic approach is useful for clarification. State Planning Office records on new housing starts were compared with National Forest land by Town to identify those Towns in the White Mountain National Forest where housing construction has radically changed from recent years and that are affecting, or could affect, National Forest lands. They are the Towns of Bartlett, Jackson, Carroll, Lincoln/Woodstock (combined), Waterville, and Thornton. Short descriptions of each follow.

The Town of Bartlett

Bartlett was incorporated as a Town in 1790. The population of full time residents grew from 1,013 in 1960 to 1,098 in 1970 and 1,566 in 1980. There are 1,810 approved condominium units with approximately 1,600 built now (1988). The valuation of the Town doubled from \$53,598,800 in 1980 to \$106,999,095 in 1984.

About 75% (41,438 acres) of the Town of Bartlett is National Forest administered land.

There are some important growth enhancing attractions in the Town; the Attitash Ski Area (a portion of which is under a Forest Service permit), Storyland and Heritage New Hampshire (commercial tourist facilities), and the nearness of the major "Factory Outlet" shopping centers in neighboring North Conway.

The Condominiums are centered around the Attitash Ski Area extending to Glen and including the West Side Road and long the west side of Route 16 in the vicinity of Lower Bartlett. Most of the other developments are residential of various ages. There are some other identified developments that are not "built out" yet.

The Town of Jackson

Jackson Village is very much a resort area although this is not so true for the Town as a whole. All the attractions are very closely related to the Village.

Jackson was incorporated in 1829. Historically the population has peaked (at almost the same levels, around 700 in the 1840's and 50's (because of agriculture), the 1870's and 1900's (a time of large inns and hotels), and the current growth in the 1980's. Jackson's growth in 1960-70 was 28.3% and in 1970-80, 58.9%.

Valuation in was 1980, \$44,610,385 and in 1984, \$47,498,165. A winter of 1987 analysis showed the average selling price of condominiums in Calendar Year 1986 was \$174,500.

The Town of Jackson has a total of 43,776 acres. Of this total 11,400 acres are private lands, 31,625 (72%) are National Forest Lands, the rest are Town lands and roads.

There are three specific areas of condominium growth in the Town of Jackson: 1) around Black Mountain Ski Area, 2) in the village itself associated with the Golf course, and 3) on Route 16 near where it enters National Forest lands. Each of these three appear to be aimed at different clientele. The most highly developed is Wentworth Resort (associated with the golf course), next come those around Black Mountain Ski Area, and the lowest level of development is found in those on route 16.

The Town of Carroll

The Town of Carroll includes the villages of Twin Mountain, Carroll, and Bretton Woods. It was incorporated in 1882. 1960 population was 295, 1970 population was 310 and 1980 population was 647. Valuation in 1980 was \$18,190,900 and in 1984 \$19,158,965. National Forest lands account for 15,165 acres, about half the land base in the Town. Condominium growth is occurring only in the Bretton Woods area.

The village of Bretton Woods has a downhill ski area, cross country skiing, motels, and several eating establishments. Condominium growth is just beginning in Bretton Woods. It has shown an increase of less than 100 housing units. There are two locations where condominium growth is occurring in the Bretton Woods area. Both are closely associated with the Bretton Woods Ski Area.

The Town is aware of some growth problems and are addressing them with building restrictions like a density control of one unit per acre or a 33 foot height limitation to the highest ridgepole. It appeared that here most of the condominiums were not intrusive on the mountain views, although in other locations on the Forest they were obvious. It appears this was a good restriction to protect visual quality.

It appeared that this is a "just developing" growth area. The other thing noticed was the necessity of a close group of recreation activities (not just outdoor resource related activities) for growth. The construction of the new recreation facility seems to bear this out. There needs to be a "draw" for the development to start but an increase of opportunities for development to continue.

The Towns of Lincoln/Woodstock

The Towns of Lincoln and Woodstock are combined in this description. They are treated as one unit because they are adjacent, they consist of one labor market, and they share many public facilities.

Lincoln was incorporated in 1764. 1960 population was 228, 1970 - 1341, and 1980 - 1313. Valuation grew from \$32,316,703 in 1980 to \$45,680,393 in 1984. Woodstock was incorporated in 1763. Population in 1960 was 827, in 1970 - 897 and in 1980 - 1008. Valuation in 1980 was \$19,635,650 and in 1984 was \$20,646,161.

Almost 90 percent of the land in the Towns of Lincoln/Woodstock (113,200 acres) are National Forest lands (101,400 acres).

The Village of Lincoln is at the intersection of Route 112 (the Kancamagus Highway) and Route 3/Interstate 93. Loon Mountain Ski Area, a Forest Service permitted area is the major winter recreational draw, although the heaviest recreation use is during the summer months. This is an area of very rapid growth as well as being very restricted by National Forest ownership.

There is heavy condominium development of a short section of Route 112 closely associated with the Ski Area development of Loon Mountain.

In Lincoln-Woodstock there are an estimated 2,500 year-round residents. But there are many seasonal employees in summer and winter recreation businesses, and there are roughly 13,400 overnight beds. While not all of these beds are available or occupied at any given time, they indicate the importance of the transient population to the economy and the demand for public services.

The Town of Waterville

Waterville Valley is an island of private ownership (about 500 acres) completely surrounded by National Forest lands. It has become a large ski/conference center with the construction of many hotels, eating establishments, and related condominiums. It doesn't have the draw of shopping in the immediate vicinity as other areas, like Conway has and Lincoln is developing. However, the recently opened Village Center provides grocery and clothing stores that were not previously available.

Waterville was incorporated in 1829. Population grew from 22 in 1960 to 109 in 1970 and 199 in 1980. Valuation grew from \$34,378,425 in 1980 to \$63,271,650 in 1984. There are 1,328 living units in Waterville Valley. With about 60 of these being single family residences, there are 1,270 condominium units.

The Town Manager is personally concerned about growth in the entire White Mountain area, but as Waterville Town Manager feels that Waterville Valley growth is controlled enough to be acceptable. It is limited by the fact it's surrounded by National Forest lands, thereby preventing the "sprawl" so common in other areas. She says it is controlled by good zoning and forward looking planning so that the developments are very acceptable and there are sufficient centralized utilities available to handle the growth. On the other hand, there is no set-back for building next to National Forest lands in Waterville Valley's zoning ordinances.

Waterville Valley has long been a summer resort area but didn't grow rapidly until winter use became an attraction with the development of a Forest Service permitted ski area in the 1950's. One of the selling points is "an island in the National Forest". Even so, the Town manager considers the people are really unaware of the White Mountain National Forest and its activities. They are just aware of large blocks of "natural land".

Winter activities are mainly alpine and crosscountry skiing. In the summer there's a combination of tennis, golf, and hiking. More condominiums are filled in winter. Waterville Valley Company is trying to make it a all-season resort, mainly through selling it as a Convention Center (there is a expansive new lodge currently being constructed).

The Town of Thornton

Thornton is the least impacted by National Forest ownership. It is affected only on the East and West sides. The growth here is in some smaller less heavily developed areas. These are less intensive and more the traditional "summer home" concept or "expensive first home" rather than condominium type.

Much of the growth in condominiums is a result from overflow of the Lincoln area.

Methodology

A literature review showed that, with the exception of physical effects of development, there was little published information on the impacts of development on management of public lands.

A letter was sent to the Staff and Districts of the White Mountain National Forest requesting their concerns to condominium development. The response identified three, they were: 1) lack of knowledge about the physical and social aspects of development, 2) uncertainty as to the impacts of this group, and 3) no clear idea of the direction the Forest should take.

The close on-the-ground look at the situation identified a few general principles about development; a "major attractant" theory, a common growth path (there are several different stages represented on the Forest), and the concept of being "Forest locked".

Local town officials were also interviewed using a standard set of questions. Some observations were, 1) there was a wide range in the ability of towns to handle growth, 2) the Towns had various record keeping systems from card files to computer printouts, and 3) each had different perceptions about development. One common thread throughout all the Towns interviewed was the overwhelming workload this growth was putting on the Town officers.

Once it was determined there were eight to ten thousand units, it became obvious that a sampling process was needed. After review of personal interviews versus mail questionnaires it was decided a mail questionnaire would be most effective. Dr. Thomas More and Dr. H. Echelberger, Forest Service researchers in Forest recreation investment research at Burlington, Vermont helped develop a questionnaire that reflected the study objectives, kept away from superfluous questions, and was consistent with acceptable questionnaire format and design.

The Town interviews gave a source for names and addresses. A mailing list of 905 names was randomly selected from each of the growth areas. Almost all of the names were from New England, including Massachusetts, New Hampshire, Maine, Connecticut, and Rhode Island. There were 258 questionnaires returned, a 29 percent return. This return rate and the fact that 64 percent of these also returned the response card asking to be included on the general Forest mailing list shows this as an interested group.

Condominium Development on the Forest

Although each growth area is unique there is also a consistency to their growth. There was usually some previous development that attracted the condominium growth. In the White Mountains, ski areas seemed to be that attractant. It also appeared that subsequent growth paths were directed by the physical constraints of available land. Being "Forest locked", that is to say, limited by National Forest lands, was an important constraint.

The development of condominiums at almost every one of the study areas began in response to an alpine ski area. The ski areas were not the cause for a boom in construction, they served as the nuclei for this boom when regional economic conditions were right. For example, condominium development in the Town of Bartlett began near the Attitash Ski Area. Waterville Valley, Loon Mountain, and Bretton Woods Ski Areas were also centers for growth of condominiums in the Towns of Waterville, Lincoln/Woodstock, and Carroll respectively.

The Town of Jackson was slightly more diversified in the beginning, an existing golf course and Black Mountain Ski Area were both growth nodes here. It appears condominium growth in the Town of Thornton had a greater package of opportunities available at the start, but nearby ski areas were important to a degree.

Earlier management decisions allowing ski area development on the White Mountain National Forest is partly responsible for this problem/growth/concern/opportunity (make your own choice). More recent decisions in the Forest Plan not to consider any new Ski Areas, only expansions to existing ones, and prohibiting alpine ski area development in the scenic easement purchased from the State of New Hampshire for the 50,000 acre Diamond Lands acquisition shows current recognition of this relationship.

There are also some important differences on how these areas grew, or are likely to grow. Generally there's a trend toward year-round use. The package of opportunities increases as a growth area matures. I believe the condominiums and package of opportunities grew in tandem once the process began. This trend toward year-round use was greatly impacted by the restriction of surrounding National Forest lands (Forest Locked). Where there is little "Forest locked" effect, the range of opportunities has grown widely and quickly. The year-round use already there increased rapidly. For example, in Bartlett condominium development has spread quickly to other areas of the Town and involves many other activities like the shopping at neighboring North Conway. At the other extreme, the range of opportunities at Waterville Valley is more limited because it's surrounded by National Forest lands.

The condominium development, because it was closely tied to the ski area, was at first limited to winter use. In order to meet the motivation to provide year-round use, Waterville Valley has aimed at the conference center concept rather than increasing the activities available. In between these two, Loon Mountain Ski Area is expanding and the Town of Lincoln is increasing its package of opportunities along with condominium growth. Condominium development is just beginning in the Town of Carroll, all of it associated with the Bretton Woods Ski Area. Three stages of growth are represented in these examples. The beginning stage (Bretton Woods), the active growth stage (Towns of Bartlett and Lincoln/Woodstock), and the mature stage (Waterville Valley).

It will be interesting to keep an eye on the growth at Bretton Woods in the Town of Carroll. They are in the early stages of growth and are constructing a Health and Fitness Center as an early step toward the year-round package of opportunities trend.

Although there was zoning and planning of some sort in all the towns, development wasn't controlled to any great degree. There were several kinds of building restrictions like height of buildings, lot sizes, etc. but they appeared to have minimal effect in controlling, directing, or limiting growth.

The Owners

From the Mailing List.

Even before the questionnaires were sent, some things about the condominium owners were obtained from the mailing list. Of the 905 on the mailing list, only five were already included on any Forest mailing lists. All five were in the Loon Mountain area and appeared to be on the mailing lists because of the current discussions over Loon Mountain Ski Area expansion. With this minor exception it seems this lack of presence on the White Mountain National Forest's mailing lists show they are not reaching the condominium owner "public".

Ninety five and one half percent (95 1/2%) were from New England, including Massachusetts, New Hampshire, Maine, Connecticut, and Rhode Island. Vermont was not represented. Historically, recreation users of the White Mountains have originated from the same states. In 1853-54, (that's right 1853) 79%, and in 1980, 86% of the visitors to Mt. Washington were from this area. (Binkley, Clark, S. Forest Product Demands on the White Mountain National Forest: A Qualitative Assessment, 1982, Table 1.1).

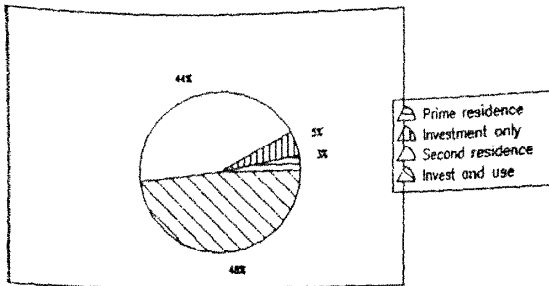
Most condominium owners are not residents. Only 5% (46) of the sample had mailing addresses in the Towns studied (it is assumed they resided there full time). It would be interesting to see if this residency rate changes.

From The Questionnaire

General. There were 258 returns (29%) from the 905 questionnaires mailed out. Compared with the usual 20% return for questionnaires of this sort this shows that condominium owners are interested in the White Mountains. The fact that 163 respondents (64% of the returned questionnaires) wanted to be on the Forest's general mailing list is consistent with this assumption. There were also 84 (33%) respondents who requested a summary of the results of this study. About 2 percent of the respondents indicated they didn't own their units. This may have been a result of changes in ownership/rental in the time between obtaining the names and sending the questionnaires.

Figure 1 illustrates the respondents reasons for purchasing the condominium units.

FIGURE 1
REASON FOR PURCHASE

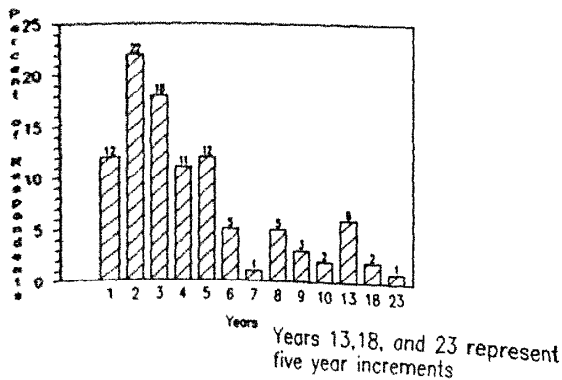


Of the 255 people that answered the question on ownership, about 3 percent said they bought for use as a primary residence. About 5 percent responded that they bought for investment purposes only (these may have been renting, or merely holding and re selling). By far the most respondents to this question owned the units for personal use as a secondary residence (about 44 %) or for a combination of investment and personal use (about 48 %). This supports the assumption, based on the mailing list that few of the owners are permanent residents in the area.

There were only 21% (53) of the responses that indicated they rented the condominium units. This indicates that three quarters or more of the owners considered the purchase of the unit, as opposed to renting the unit, an investment. Of those who rented the units, 26% rented for one week or less, 21 % for up to four weeks, and 53% for more than four weeks.

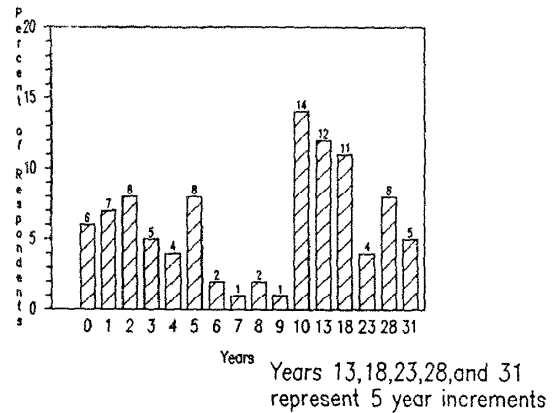
History. Figure 2, showing the years the units have been owned, verifies the growth in the last five years and the start of a slowdown.

FIGURE 2
TIME OWNED



In order to get an idea of the owners familiarity with the White Mountains a question on the number of years they had visited here before purchasing was included. It was surprising to find that over 50 percent of the owners had been coming to the mountains for 10 or more years before purchasing (Fig. 3). It appears that there may be two groups of condominium owners, 1) the new owners who have visited the mountains for around 5 years and 2) those who have visited the Forest for more than ten years before they brought their condominium. If more time were available it might be interesting to see if there are differences between these two groups. It is suspected there would be some in the age groups and some differences in the activity interests.

FIGURE 3
TIME VISITING MOUNTAINS



Owner characteristics. Figure 4 shows the total number of individuals reported by age group. There were 976 people reported by the 258 returned questionnaires, representing an average group size of 3.8 people per household. The data for age groups by household are also interesting. As shown in Figure 5, the 0-19 age group was represented in 61 percent of the households and 68 percent had individuals in the 40-49 age group.

Together these data belie the generally accepted image of condominium owners as being dual income, no children owners; they are more family oriented than commonly perceived.

FIGURE 4
INDIVIDUALS BY AGE GROUP

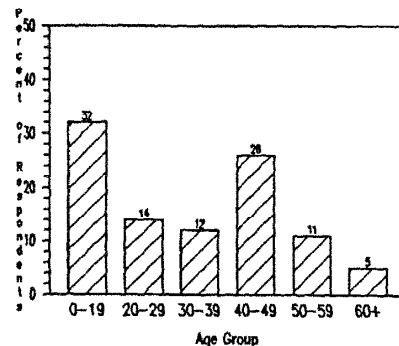
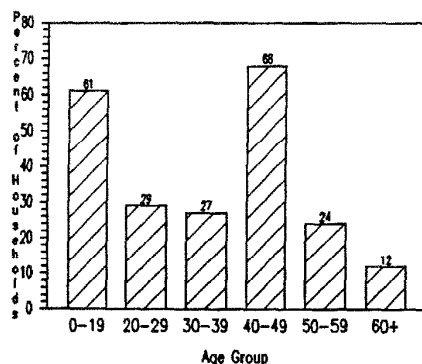


FIGURE 5
AGE GROUPS BY HOUSEHOLD



Knowledge of the Forest Service. Almost 94% of the respondents indicated they had heard about the United States Forest Service. Slightly more than 99% said they had heard about the White Mountain National Forest. Although this doesn't tell much about knowledge of the Forest Service it shows that almost all at least recognize the presence of a National Forest, an important first step.

One of the related, and more important, questions asked the owners their ideas on what activities they recognized in the forest and what activities they thought should occur on the forest. The results are shown in Table 1.

This table deserves some discussion. In the timber management category, the similarity of the figures between "current" and "should" indicates that "what they see is what they like". There is very little difference between what the respondents perceive in timber activities and what they believe should occur on the forest. It is significant that less than 25% of the condominium owners don't want any timber management but 75% consider "some" or "a lot" as acceptable. This tells only part of the story. Although in concept the respondents agree with timber management, in fact they might be adamantly against it if were to occur in their backyard.

In the area of camping, it looks like they want less than is now provided. This is an activity that is highly visible to the casual forest user so it would appear they have a good feeling on how much is currently available. Perhaps because this is an activity they wouldn't be involved in as condominium owners the need to this group is not important.

The respondents recognize that there's a lot of trail work done on the Forest but many think more should be done. This activity exhibited the highest percent (71.7%) of "should do a lot".

Wildlife habitat management is another activity the respondents think the Forest should be doing more of; just slightly less than trail maintenance. They indicate much more is wanted.

The response to fish habitat management activities was interesting. Sixty six percent of the owners perceive fish habitat work on the forest. With the exception of the last several years none has been done. Perhaps the recent emphasis, including the Atlantic Salmon work, has put this up front. About the same amount think the Forest should be doing more. Another explanation could be that they may not perceive fisheries management the same way the Forest Service does. Just having streams available and accessible may mean management to them.

More condominium owners indicate (53.6%) the Forest should be providing "some" alpine skiing opportunities than "a lot" (44%). Almost the reverse is true on what they perceive is now provided. Forty five percent believe the Forest provides "some" alpine skiing and 52% think the Forest provides a lot of alpine skiing opportunities.

Picnicking showed few changes between the "current" and "should" categories.

Snowmobiling was a surprise. Fifty percent of the respondents felt that the Forest should provide no snowmobiling. That's more than twice the percent that currently see no snowmobile use. Only 12% felt the Forest should be providing "a lot" of this activity. That's almost half the amount that currently perceives a lot of snowmobile use on the forest. This was the only activity with such a negative connotation.

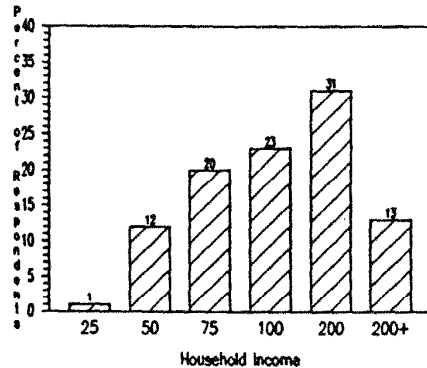
The most important message of this data is that condominium owners generally recognize the White Mountain National Forest as a working forest, that is to say, a land base to provide multiple uses.

TABLE 1: PERCEPTION OF CURRENT AND DESIRED ACTIVITIES

ACTIVITY	NONE		SOME		A LOT	
	CURRENT	SHOULD	CURRENT	SHOULD	CURRENT	SHOULD
Timber Harvesting	22.2%	23.4%	69.5%	66.5%	7.8%	10.1%
Camping	0%	.4%	25.3%	48.8%	74.7%	50.8%
Trail Maintenance	2.0%	0%	48.2%	28.3%	49.8%	71.7%
Wildlife Habitat Management	8.0%	1.2%	63.9%	28.0%	28.1%	70.8%
Fish Habitat Management	8.5%	1.2%	66.5%	34.4%	25.0%	64.4%
Alpine Skiing	2.8%	2.4%	45.1%	53.6%	52.2%	44.0%
Picnicking	.8%	0%	41.6%	48.2%	57.6%	51.8%
Snowmobiling	20.5%	50.2%	58.6%	37.5%	20.9%	12.4%

More than 44 percent of the respondents had graduate degrees, 34 percent were college graduates, 16 percent had some college, and less than 10 percent had high school or less than high school. Consistent with this high education level Figure 6 shows the generally high income levels for condominium owners.

FIGURE 6
INCOME CHARACTERISTICS



Household income in thousands

Activity involvement. Also asked was the question, what activities are you involved in, and how often? The activities for them to respond to included four groupings, 1) outdoor, forest related, 2) outdoor, not forest related, 3) sports related, and 4) social activities. The results are shown in Table 2.

TABLE 2: RESPONDENT ACTIVITY INVOLVEMENT

ACTIVITY	NEVER	SOME-TIMES	OFTEN
OUTDOOR FOREST RELATED (AVE.)	61.2%	27.6%	12.2%
Downhill Skiing	12.3%	20.6%	67.2%
Crosscountry (groomed)	34.1%	47.2%	18.7%
Crosscountry (ungroomed)	76.5%	20.6%	2.9%
Dayhiking	15.4%	64.8%	19.8%
Fishing	66.9%	30.2%	2.9%
Hunting	96.4%	2.8%	.8%
Snowmobiling	93.7%	6.3%	.0%
Picnicking	25.8%	66.3%	7.9%
Backpack Tent Camping	80.2%	18.6%	1.2%
Backcountry Huts	85.0%	14.6%	.4%
Bicycling (offroad)	66.6%	11.9%	1.6%
OUTDOOR NOT FOREST RELATED (AVE.)	33.0%	51.5%	14.8%
Driving for Pleasure	10.2%	64.3%	25.5%
Bicycling (road)	57.3%	38.7%	4.0%
SPORTS RELATED (AVE.)	29.1%	49.9%	30.0%
Jogging/exercise	25.1%	52.6%	22.3%
Pool Swimming	17.3%	49.8%	32.9%
Pond/river swimming	28.3%	53.1%	18.5%
Golfing	42.1%	44.1%	13.8%
Tennis	32.7%	50.0%	17.3%
SOCIAL (AVE.)	17.4%	54.4%	28.2%
Dining Out	.4%	43.3%	56.3%
Plays, concerts, lectures	44.8%	49.6%	5.6%
Shopping	7.9%	59.4%	32.7%
Visiting	16.3%	65.4%	18.3%

This data represents only one component of the White Mountain National Forest's recreation users. The high level of alpine skiing use validates the earlier statements on the close relationship of ski areas as a nucleus of growth for condominium development. It appears that only a few activities (groomed cross country skiing, dayhiking, and picnicking) are outdoor, forest related and done by condominium owners in large amounts. In general the high percentage (61%) that reported no involvement with "Outdoor Forest Related Activities" shows that condominium owners have little demand for traditional Forest recreation activities.

When asked where their best source of local information came from, more than 80% indicated it was from published information and almost 30% said from "People I talk with". There were some respondents that indicated both. There were only twelve respondents that identified the "other" category. They named local paper or location in the area for explanation.

General attitudes. There were three open ended questions that required individual analysis. Often there was more than one comment for each question. This discussion combines responses from all the towns.

"What are your greatest concerns about the White Mountains in the next ten years?"

This question generated 354 responses. The response were easily categorized. It appears condominium owners are aware of the potential impacts of increased growth (161 responses) or overuse, crowding, and congestion, (92 responses). Considerably fewer (47 respondents) were concerned about the loss of natural resources or the impact of growth on natural resource. Thirty two respondents identified pollution and acid rain as the major problem in the next ten years. There were a dozen comments about a lack of alpine ski areas. Few (10) were concerned about the lack of recreation facilities or recreation support facilities. Three commentators said ORV's would be the biggest problem in ten years, five said timber harvesting, one said overhunting, one said increasing theft, and one said "too conservative an outlook and too many restrictions."

These responses suggest condominium owners have some of the same concerns as the general New Hampshire population; a worry about the rapid growth and its associated problems. The lack of concern about recreation facilities indicates respondents are satisfied with the amount of recreation facilities (for their activities) in the White Mountains.

"What things do you like about the White Mountains?"

This question generated the most responses (511) of the open ended questions. They fit easily into groups. By far most respondents (194) considered the naturalness of the White Mountains the greatest attraction. The variety of recreation activities in the area (123 responses) and the relaxing life style (responses) were about equally rated. Forty five people said they liked the accessibility from their homes or the easy availability of activities once here. Thirty six liked the small town atmosphere and the people associated with it.

It is obvious they like the natural, relaxing atmosphere and the variety of year round recreation activities.

"What things do you dislike about the White Mountains?"

This had the fewest responses (148) of the three questions. They were also more difficult to summarize. It appeared respondents were not so consistent in their thoughts as in other questions, although the worry about overdevelopment and commercialization of the White Mountains was still foremost in their minds. In addition to the major categories 1) overdevelopment and commercialization (84 responses), 2) overcrowding and congestion (52 responses), and 3) pollution about nature (12 responses), there were a miscellaneous comments. Eight respondents thought there was overuse on the forest resulting in poor maintenance of trails other facilities, and six (in the Lincoln area) stated there were not enough alpine ski areas. Four didn't like timber harvesting, were concerned about motorized vehicles in restricted areas, and three thought there wasn't enough information about activities.

two felt there weren't enough golf courses, two were concerned about transient visitors and related crimes, one respondent was concerned about private campgrounds, one was worried about low level aircraft flights, one about the cost of tickets (I assume lift tickets), three stated the weather (tongue in cheek), and seven were concerned about bugs, specifically black flies (not necessarily tongue in cheek).

There is a consistency of responses regarding a concern about overdevelopment, commercialization, congestion, and overcrowding.

What It Means

Findings from this report are discussed here in regards to recommended actions related to recreation management on the White Mountain National Forest.

Condominium Development on the Forest

The attractant theory. Some Forest developments, Ski Areas in the case of this study, are important as nuclei for condominium development when regional economic conditions are right.

The impacts of this has been well documented in this report. Consideration of the potential development effects of private investment concession operations on National Forest lands must be considered in future decisions. Although the effects can be either good or bad depending on one's viewpoint, it's important to know what could happen. This was considered in the Forest Plan decision not to allow new ski areas, only expansion of existing ones. A similar decision was made in developing the Scenic Easement for the Diamond Lands purchase. Alpine ski area development will not be allowed under the conditions of the easement which provided federal funding for purchase of lands for the State of New Hampshire. *Other forests that may not be so far along in development should observe and project what's happened here in evaluating private investment concession operation proposals.*

Current talk Service-wide about major partnership concessions of the "Disneyland" type make this even more important. Wise decisions on such attractants to development may also be helpful in steering cluster development to acceptable areas.

Currently the White Mountain National Forest has two non-operating ski areas. Both these should be evaluated to decide whether or not we want the potential development that may occur in times of economic growth and consider this in the analysis for reissuance.

"Forest Locked" theory. It appeared the subsequent growth paths of the developing areas were directed by the physical constraints of available land. Being "Forest locked", that is to say limited by National Forest lands was an important constraint.

This, of course, operates both ways. The private development restricts what we can do just as National Forest lands restrict what direction the private development takes. Although the effects of one neighbor's action on another neighbor is commonly known, it seems that the examples in this paper didn't consider that. The Forest has usually let the development take its course and reacted when a problem occurred. There should be more interaction between the private sector and the public sector in these areas as the development expands; there are benefits to both. The Forest has been neutral in condominium development in these growth areas. They usually responded only to requests rather than becoming proactive as the development progressed.

The Forest has generally been interested only in its own "bailiwick", ski area permits, or timber operations for example, rather than considering what can be provided in exchange for bettering the Forest position to provide public recreation opportunities.

If contact and planning efforts between the National Forest and the Town or the development group would occur, benefits would accrue to both. These kinds of efforts are generally frowned upon in the Forest Service because National Forest lands are not directly involved. Work of this type is also construed as becoming too involved with the private sector. Even if this attitude were changed there is not the money or the people (and maybe not even the skills) to become involved to the level needed. *A Forest level task team, or even a separate staff area responsibility, that would address related emerging problems and concerns as soon as development becomes apparent would be a good direction to take.*

The Owners

The market area. It is clear that these owners are from the same geographic market area as the historical users of the Mountains when this was heavily touted as a tourist area (called the carriage trade or the grand hotel days). Although it can't be clearly identified because of lack of early records these people may be from the same social strata as during the carriage trade days - fairly high up the scale. Past users of the White Mountains have had tremendous influence on land management decisions. It was this group that were of prime importance in designating the White Mountain National Forest itself. Their greatest influence was when they were organized for a particular cause - the saving of the White mountains from the "destructive" loggers. The Forest should be aware of this potential and become more active in working with it. Already this is being done, with partnerships and the marketing of the Forest Service in general, but perhaps it is time to look at the possibility of marketing the White Mountain National Forest specifically to this group. It needs to be made clear in working with these people that they are only group of National Forest users. There are others just as important, often with contradictory needs and interests. *With this warning in mind the Forest needs to work with this group of people so they are aware of what we do and which of those activities are beneficial to them so we can be allies not enemies.*

Non-interest versus interest and family orientation. There are conflicting messages regarding the interest or non-interest of the condominium owners and a difference in the perceptions of this group and reality.

This is essentially a nonresidential public and they most often buy for investment purposes. One would think that these factors would lead to a disinterested public. On the other hand, many of these people have been coming to the White Mountains for 10 or 25 years and the "investment purchase" objective is most often met as a purchase and second home residence. These last descriptors appear to outweigh the "disinterest factors", making the condominium owners an interested public. This is contrary to the generally accepted belief.

Also contrary to general perceptions is the family orientation of the group. About two thirds of the units surveyed represented the 40 - 49 and the 0 - 19 age groups.

The recommendation for this finding is more internal than external. The Forest needs to make its own people aware that this group is not just out there; they are familiar with the area and they have an interest. Many are family groups. This is consistent with one underlying concept of the White Mountain National Forest's recreation management principles - to provide family oriented recreation opportunities.

This report itself has heightened the awareness and the knowledge of the condominium owner public, but only to a limited number. *An effort should be made to provide the information from this report to other employees. A summary should be sent to all employees and the results should be brought up and discussed at the Ranger Staff and annual Forest recreation meetings.*

Income and education levels. These people generally have high education and income levels.

This data verifies the generally accepted opinion that this group is highly educated and highly salaried. The ramifications of this information is represented by the assumed political knowledge, influence, and ability to make changes that this group represents. The earlier discussion of the market area (historic recreation use and the condominium users) alludes to historical impacts from similarly positioned groups. The same objective discussed there applies here as well. *The Forest needs to work with this group so they are aware of what we do and which of those activities are beneficial to them so we can be allies.*

Knowledge and perception of the Forest Service and its activities. The condominium owners perceive the White Mountain National Forest as being used, and should be used, to provide a balance of resource outputs.

It was surprising and gratifying to see the balanced outlook these people had about the Forest. They seem to accept the concept of a "working forest". Because of this it should be easier to work with this group in telling them "our story". This is not just a fortunate accident but the results of years of integrated, scientific resource management using large components of public (not necessarily this particular public) involvement. *The Forest needs to maintain these efforts.* On the other hand the Forest needs to be aware of the important differences they perceive such as snowmobiling activities.

Activity involvement. The activities this group is involved in are weighed heavily toward the social and non forest related types but there is a component of forest related activities.

Although most of the identified recreation activities don't fit what can be provided there are some that fit the Forest mandate. Many of these we have already identified as an emerging need such as dayhiking and groomed crosscountry skiing. The connection between alpine skiing and the developments themselves is obvious. There are other activities like driving for pleasure that have always been known but about which very little has been done until recently. If the Forest is to reach these people through recreation activities it appears these are the ones to be worked through. *The Forest should be marketing its programs in Scenic Byways, crosscountry permit areas, and dayhiking trails to the condominium owner community.*

Obtaining local information. More than 80% replied that they received their local information from published information.

The management recommendation based on this data is straightforward. *The Forest should be getting help to put White Mountain National Forest information in local publications and marketing the Forest through these same publications.*

Their concerns and their likes. These people are here for the scenery and natural views and they are concerned about overdevelopment just as many others are.

The Forest is obviously aware of the need for scenic beauty. It's been a concern for years and it matches with the views of this group. It appears the Forest has been doing a good job in visual management because timber has been cut on the Forest for over 75 years and the visual quality of the mountains is still recognized. *Continuing with concern for the visual in Forest management practices is the recommended direction.*

The Forest is aware of the concern about overdevelopment. Many of these concerns are related to private land development and Forest effects are only secondary, but the potential impacts of White Mountain National Forest decisions on surrounding private lands holds our greatest potential for addressing this concern.

RESIDENTS' PERCEPTIONS OF
RECREATION DEVELOPMENT AND LAND
USE WITHIN THE ADIRONDACK PARK ¹

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During the summer of 1989, 330 Adirondack Park residents were interviewed using a mail questionnaire regarding their perceptions of recreation development and changing land use within the Adirondack Park. The results of the data collected indicate that park residents perceive negative environmental impact occurring from growing recreation development. This paper examines this finding as it relates to recreation, the forest products industry and the Forest Preserve within the Adirondack Park.

Introduction

The Adirondack Park is the prototype for multiple purpose land use areas in the United States. It combines private and public lands in a unique six million acre preserve (60% private and 40% public ownership) that is approximately the size of the entire state of Vermont, and is one million acres larger than Yellowstone, Yosemite, Grand Canyon, and Olympic National Parks combined (Liroff and Davis, 1981). Within the Park's boundaries are 2,300 lakes and ponds, 1,200 miles of river, 30,000 miles of brooks and streams, 43 state camp grounds, 2,000 miles of hiking trails, 42 peaks over 4,000 feet in elevation, a forest products industry that controls 1.1 million acres of private land, numerous theme parks, "upscale" shopping districts and other "tourist attractions," and, often overlooked amidst this physical inventory, nearly a quarter of a million permanent and seasonal residents. Several million visitors each year make the park one of the premier recreation areas in the nation.

Consumptive land use activities threatened to render the Adirondack region an ecological

disaster area in the late 1800's. New Yorkers responded to this threat by protecting the region with a "forever wild" clause in State Constitution in 1892, and two years later by giving the region (park) status. The Forest Preserve (public lands) within the Adirondack Park remain the only state constitutionally protected wilderness in the United States. In the early 1970's, the park was strengthened by the creation of an administrative body, the Adirondack Park Agency (APA), which included in its powers the authority to approve all new private land uses of potential regional impact (Graham, 1978).

Despite these protections, the Adirondack Park faces challenges today that are perhaps as threatening as any in its history. Recent low energy costs and relatively inexpensive land prices have dramatically increased development pressures in the park. A few statistics illustrate the magnitude of the problem. Between 1985 and 1987 the average price per acre paid by New York State to acquire land within the park rose from \$140 to \$275 (Gallagher, 1987), and some privately owned lands have increased in value by 50 to 60 times during recent years (Witkin, 1987). In 1988 the number of permit applications for construction or subdivision increased 57% over the previous year, and the Adirondack Council (a regional citizen's watchdog group) reported that 11 large development projects, ranging from 32 to over 100 units, were in the planning stages throughout the park (Barth, 1988). These trends are especially alarming when seen in the context of estimates that the current Adirondack Park Agency (APA) zoning plan would allow for an additional 500,000 new homes and 1.5 million new residents (Barth, 1988).

These development pressures have altered economic and social relationships within the park. For example, forest products companies with substantial timberland holdings have been targeted by corporate speculators. "The full value of such land is often not reflected in the price of a forest product companies stock. Thus a buyer with little interest in forest products can purchase a company for the price of the company's stock, break it into its various components-such as processing plants and timberlands, and sell them separately for a substantial short-term gain" (Commission on the Adirondacks in the 21st Century, 1989). One such takeover, the Diamond International Corporation by English corporate raider Sir James Goldsmith, resulted in the sale of a large tract of Adirondack lands to land-speculator Henry A. Lassiter. This sale catalyzed environmental groups and the media to detail the threat posed by such transactions to the "open" character of the Adirondack Park (Kunstler, 1989, Barth, 1988, and Bauer, 1988).

¹ This work is the result of research sponsored by the State University of New York Research Foundation and the State University of New York College at Cortland Faculty Research Program

Responding to these concerns, New York State Governor Mario Cuomo constituted the Commission on the Adirondacks in the 21st Century: to study impacts related to tourism and commercial recreation development, changing land use of the forest products industry, environmental threats (i.e. acid rain), and the seemingly inability of state agencies to effectively protect the park from negative land use impacts. As part of its study, the commission held a series of public meetings throughout New York on the future of the Adirondack Park. The meetings held within park boundaries were often contentious, with residents complaining that they felt threatened by some proposed regulations. One commission member, Robert Flacke, has publicly threatened to release a minority report that addresses the needs of the park's permanent residents. Flacke stated that, "the commission should conclude a report that would give the people of the Adirondacks the same opportunities that the rest of the citizens have, opportunities for communication, for education, for sending their children to college, for making a decent wage and having good health care" (Edwardsen, 1990).

The perceptions of the nearly 1/4 million park residents are crucial to the future of the park. A systematic study of resident's perceptions of development and related changes to the park provides a valuable supplement to the anecdotal information collected through public meetings and the media. Residents' perceptions of the Adirondack Park and the agencies that govern it, are essential in developing park policies and procedures for the future. Finally, understanding park residents may be one of the keys to developing a "park feeling" in the Adirondacks, something which is often cited as lacking by park experts like George Davis, Executive Director of the Commission on the Adirondacks in the 21st Century (Barth, 1989).

Procedures

With guidance from the APA, the New York State Department of Environmental Conservation, the Adirondack Council, the Northeast Forest Lands Study, and drawing on an earlier survey of Adirondack landowners conducted by Cornell University's School of Rural Sociology, a survey instrument was designed to measure behaviors, beliefs, and characteristics of park residents. Specific questions were cast in five general dimensions: demographics, recreation, development and environment, park management, and the forest products industry.

A random sample of households residing within park boundaries was drawn by Survey Sample, Inc. of Norwalk, Connecticut, which advertises a comprehensive data base for mail samples accessing over 78 million homes and addresses, and representing over 88 percent of all U. S. households. After two mailings,

330 responses were gathered from deliverable addresses. A phone survey of a random sample of non-respondents which will estimate the degree of bias introduced by self-selection in the mail survey is planned for the summer of 1990.

Demographics

The typical respondents in the study were male, 55.5 years of age, and had lived in the park for all or most of their adult life. Respondents resided in the park for an average of 10 months each year, averaged 14.2 years of schooling, and had a median income of \$30,000. Only 8 percent of the respondents rented their home. Of the 42 percent that owned property, 7.5 percent owned 25 acres or more and 3 percent owned 100 acres or more. Thirty-three percent of the respondents were retired or semi-retired.

Some of these characteristics, especially the relatively high income and education levels, do not fit the typical perception of Adirondack residents. There are two plausible explanations for this mismatch: the respondents are not representative of Adirondack residents, and the demographics of the region are changing. It is probable that both explanations contribute to some degree. Higher response rates for individuals with higher-than-average income and education is a well-documented occurrence in mail surveys (Dillman, 1978), but there is also evidence that the demographics of Park residents are moving towards the profile described above (Commission on the Adirondack Park in the 21st Century, 1989; Shaw, 1990). More conclusive evidence on this topic would emerge from the 1990 census and the survey of non-respondents outlined above.

Results and Discussion

The results from the Adirondack Park Resident questionnaire provide an interesting insight into resident perception. In reviewing the results, resident responses are discussed in relationship to four land use issue areas. These areas are: development, recreation, the Forest Preserve, and the forest products industry.

Development

Based on responses, residents perceive that development within the Adirondack Park is occurring too fast, having a negative impact on the park, and that people who live outside the Park are largely responsible for these changes. The data presented in Table 1 shows that by a wide margin, respondents felt the rate of development within the park was too fast (58.6% reported it is occurring too

fast). In comparison, only 7.7 percent of subjects felt that development was too slow. As a result of the increased rate of development, an overwhelming majority (72.7%) of those who responded perceived the character of the Adirondack Park is changing (see Table 2 for complete results for this question). Table 3 reports the effect Adirondack Park residents believe the change in character is having on the park. As can be seen, 63.9 percent of the respondents perceive environmental conditions within the Adirondack Park as declining. In comparison, 6.7 percent of subjects see environmental conditions improving. Interestingly, a similar percentage (7.7%) of respondents also thought the rate of development (Table 1) was too slow.

Table 1. Adirondack park residents' perceptions of the rate of development within the Adirondack Park n=324

Perception of Development	Frequency	Percent
Too Fast	190	58.6
About Right	86	26.5
Too Slow	25	7.7
Don't Know	23	7.1
Total	324	≈ 100.0

Table 2. Adirondack Park residents' perception toward whether increased development is changing the character of the Adirondack Park n=330

Development is Changing the Character	Frequency	Percent
Agree	240	72.7
Neutral	35	10.6
Disagree	43	13.1
Don't Know	12	3.6
Total	330	100.0

Table 3. Adirondack Park residents' perception of environment conditions within the Adirondack Park n=327

Perception of Conditions	Frequency	Percent
Improving	22	6.7
About Same	96	29.4
Declining	209	63.9
Total	327	100.0

When asked who is responsible for increased development within the park, 56.2 percent of the subjects believe people who live outside the park boundaries are responsible, while 43.8 percent of those responding felt development responsibility falls either on people who live in the park or equally on people who live inside; and people who live outside the park boundaries. However, the majority (64.9%) of residents sampled believe that New Yorkers who live outside the Adirondack Park have too much control over what happens in the park (complete response to both of these questions can be seen in Tables 4 and 5). One argument often used to offset concern over environmental and quality of life changes due to increased development is the economic benefit that will be gained by local residents primarily due to the creation of new jobs. When residents sampled were asked whether jobs created by development are worth the changes they cause in the Adirondack Park, almost three to one (64.9% to 26.4%) responded that they felt jobs were not worth the associated changes (see Table 6 for complete response to this question).

Table 4. Adirondack Park residents' perception of who is responsible for new development within the Adirondack Park n=324

Perception of Responsibility	Frequency	Percent
People Outside Park	182	56.2
People Inside Park	36	11.1
Inside/Outside=Equally	106	32.7
Total	324	100.0

Table 5. Adirondack park residents' perception of the amount of control New Yorkers who live outside the Adirondack Park have over what happens in the park n=328

Perception of Control	Frequency	Percent
Too Little	20	6.1
Too Much	213	64.9
Enough	62	18.9
No Opinion	33	10.1
Total	328	100.0

Table 6. Adirondack Park residents' perception of whether jobs created by development are worth the changes they cause to the Adirondack Park n=322

Table 6 continued

Perception Towards Jobs	Frequency	Percent
Jobs Worth Changes	85	26.4
Jobs Not Worth Changes	209	64.9
Don't Know	<u>28</u>	<u>8.7</u>
Total	322	100.0

As a result of the questions asked of Adirondack Residents regarding development, it seems apparent that those sampled perceive development as having a negative impact on the park. Residents also feel they do not have control over what is happening in the park from a developmental perspective. Finally, potential economic gains associated with development do not appear to overcome residents' desire to protect the environmental quality in the park and their associated present quality of life. These findings are seemingly contrary to popular belief about Adirondack Park residents. Recent media articles (Kunstler, 1989; Bart, 1989, 1988, Bauer, 1988 and Gallagher, 1987), and the results of public hearings (October 1989) for park residents concerning future development would suggest those living within park boundaries place a higher priority on personal economic gains than on protection of environmental quality. This idea, in light of the fact that park residents per capita income in 1985 was only 72 percent of the state average (Commission on the Adirondack Park in the 21st Century, 1989), makes sense. However, the results of this study would indicate that there are at least a large subgroup of Adirondack residents who believe protection of the park's environmental quality is more important than economic gains at the expense of degrading the natural environment of the park.

Recreation

Subject responses to questions regarding recreation opportunities within the Adirondack Park indicate park residents participate in a variety of outdoor recreation activities, mainly on private lands, and believe there are enough recreation opportunities within the Adirondack Park. Table 7 shows frequency of response data for activities participated in by subjects within the Adirondack Park. As would be expected of a rural natural resource-based area, outdoor recreation activities such as hiking (30%), fishing (23%), hunting (19%), and camping (14%) are predominant recreation pursuits. Subject responses indicate that most recreation activities take place on private lands (50.2%) with only 25.6 percent of respondents recreating on state Forest Preserve lands within the park (complete response to this question can be seen in Table 8). When questioned about the adequacy of recreation

opportunities within the Adirondack Park, resident subjects overwhelmingly agreed that there are enough recreation opportunities within the park (see Table 9 for complete results for this question). The response to these questions regarding recreation within the Adirondack Park would seem to indicate that the quality and opportunity for diverse outdoor recreation activities continues to remain high even though park residents believe the environmental quality of the park is declining due to new development.

Table 7. Recreation activities participated in by Adirondack Park residents on Forest Preserve land n=333

Activity	Frequency	Percent
Hiking	101	30.0
Fishing	78	23.0
Hunting	82	19.0
Camping	48	14.0
Boating	34	10.0
Swimming	25	8.0
Skiing (Downhill)	25	8.0
Skiing (X-Country)	20	6.0
Canoeing	20	6.0
Other Activities	57	17.0

Table 8. Where Adirondack residents recreate in the Adirondack Park n=289

Location of Recreation	Frequency	Percent
On Private Lands	145	50.2
On Town/Village/ County Lands	70	24.2
On State Forest Preserve Lands	<u>74</u>	<u>25.6</u>
Total	289	100.0

Table 9. Adirondack Park residents' perception of the adequacy of recreation opportunities in the Adirondack Park n=332

Enough Recreation Opportunities	Frequency	Percent
Agree	223	67.2
Neutral	32	9.6
Disagree	59	17.8
Don't Know	<u>18</u>	<u>5.4</u>
Total	332	100.0

Forest Preserve

The unique protection of public lands (Forest Preserve) in the Adirondack Park by the New York State Constitution provides the precedence for comprehensive management and regulation of these lands by the New York State Department of Environmental Conservation (DEC). Similarly, activities on associated private lands within the Adirondack Park are planned for and regulated by the Adirondack Park Agency (APA). Park residents' understanding of the constitutional protection of the Forest Preserve is paramount to their understanding of how state agencies (DEC and APA) manage land use within the park. Surprisingly, when asked if the Forest Preserve was protected by the New York State Constitution, the majority of residents sampled (53.2%) did not know the answer or incorrectly answered this question (see Table 10 for complete results to this question). When specifically questioned about state management of the Forest Preserve within the Adirondack Park, the majority of those who responded (55.6%) believed there was adequate access to Forest Preserve lands, and 45.2 percent of those sampled perceived that Forest Preserve lands were not overused (see Tables 11 and 12 for complete results to these questions). However, when asked whether or not Forest Preserve lands are being properly managed, the modal response to this question show 36.9 percent of those who responded do not believe the Forest Preserve lands are being managed properly (complete response to this question can be seen in Table 13). Similarly, park residents, by a small majority (44.1% to 32.4%), believe that there are too many rules and regulations governing what residents can do in the Adirondack Park, although 76.9 percent feel that some rules are needed (see Tables 14 and 15 for complete results to these questions).

Table 10. Adirondack Park residents' knowledge of the protection of the Forest Preserve by the New York State Constitution n=329

Forest Preserve Protected By the Constitution	Frequency	Percent
Yes	154	46.8
No	16	4.9
Don't Know	159	48.3
Total	329	100.0

Table 11. Adirondack Park Residents' Perception of the adequacy of access to Forest Preserve lands in the Adirondack Park n=331

Table 11 continued

Enough Access	Frequency	Percent
Agree	184	55.6
Neutral	25	7.6
Disagree	90	27.2
Don't Know	32	9.7
Total	331	≈ 100.0

Table 12. Adirondack Park Residents' perception towards whether Forest Preserve lands in the Adirondack Park are overused n=330

Forest Preserve Lands Are Overused	Frequency	Percent
Agree	69	21.0
Neutral	63	19.1
Disagree	149	45.2
Don't Know	49	14.8
Total	330	≈ 100.0

Table 13. Adirondack Park Residents' Perception towards whether Forest Preserve lands in the Adirondack Park are properly managed n=331

Forest Preserve Lands Are Properly Managed	Frequency	Percent
Agree	80	24.2
Neutral	83	25.1
Disagree	86	36.9
Don't Know	82	13.9
Total	331	≈ 100.0

Table 14. Adirondack Park residents' perception towards whether there are too many rules and regulations governing what residents can do in the Adirondack Park n=331

There Are Too Many Rules and Regulations	Frequency	Percent
Agree	146	44.1
Neutral	68	20.5
Disagree	107	32.4
Don't Know	10	3.0
Total	331	100.0

Table 15. Adirondack Park residents' perception of the need for rules to regulate what people do in the Adirondack Park n=324

Residents' Perception	Frequency	Percent
Rules Are Needed	249	76.9
No Rules Needed	69	21.3
No Opinion	6	1.9
Total	324	≈100.0

Subject responses to these questions would suggest that residents do not understand the unique constitutional protection of the Forest Preserve and the impact that this protection has on the region where they live. Frustration with and lack of understanding about the bureaucracy that manages and regulates what happens in the park may be appearing in subject responses. This finding may help explain the seemingly contradictory results of residents' positive perception towards Forest Preserve lands (adequate access and not being overused) while not uniformly agreeing that Forest Preserve lands are being properly managed.

Forest Products Industry

The forest products industry is perceived by resident respondents as an important component of the Adirondack Park. When asked about the effect the forest products industry has on the Adirondack Park, 42.2 percent of those sampled believe the forest products industry has a positive effect on the park. In comparison, only 28.9 percent of respondents viewed the effect to be negative (see Table 16 for complete results for this question). Similarly, residents felt the forest products industry should "keep production levels the same" (55.2%) or "increase production levels" (15.5%). Only 23.6 percent of those who responded believe the production level should be decreased (see Table 17 for complete results for this question). Interestingly, park residents respondents felt so strongly about the valuable role that the forest products industry plays in the Adirondack Park that 73.6 percent believe New York State should provide the forest products industry with incentives (tax incentives, technical assistance, subsidies, etc.) to keep their land in production. Only 11.8 percent of the sample disagreed with the idea of incentives (see Table 18 for complete results for this question). Finally, when asked who should have the first opportunity to purchase forest products lands when they are put up for sale, over a two to one margin (61.2% to 29.4%) of park residents believe New York State should be given the first opportunity (see Table 19 for

complete results for this question). This finding concurs with subject response to the general idea of New York State purchasing more public land in the Adirondack Park. Fifty-two percent of respondents believe the state should purchase more public land in the park. However, the residents are equally split (29.2% agree and 29.2% disagree) on their perception of how good a job New York State has done in the past in acquiring new public lands for the Adirondack Park (see Tables 20 and 21 for complete results for these questions).

Table 16. Adirondack Park residents' perceptions of the effect of the forest products industry on the Adirondack Park n=325

Residents' Perceptions	Frequency	Percent
Negative Effect	94	28.9
Positive Effect	137	42.2
No Effect	36	11.1
No Opinion	58	17.8
Total	325	100.0

Table 17. Adirondack Park residents' perception of the forest products industry production level in the Adirondack Park n=330

Residents' Perceptions	Frequency	Percent
Increase Production	51	15.5
Decrease Production	78	23.6
Keep Production Same	182	55.2
No Opinion	19	5.8
Total	330	≈ 100.0

Table 18. Adirondack Park residents' perceptions towards whether New York State should provide the forest products industry with incentives to keep their land in production n=330

Should Provide Incentives	Frequency	Percent
Agree	243	73.6
Neutral	35	10.6
Disagree	39	11.8
Don't Know	13	3.9
Total	330	≈ 100.0

Table 19. Adirondack Park residents' perception towards whether New York State should be given first opportunity to purchase forest products industry land when they are put up for sale n=333

Should Be Given First Opportunity	Frequency	Percent
Agree	204	61.2
Neutral	24	7.2
Disagree	98	29.4
Don't Know	7	2.1
Total	333	≈ 100.0

Table 20. Adirondack Park residents' perception towards whether New York State should purchase additional land in the Adirondack Park n=329

Should Purchase Additional Lands	Frequency	Percent
Agree	171	52.0
Neutral	23	7.0
Disagree	123	37.3
Don't Know	12	3.6
Total	329	≈ 100.0

Table 21. Adirondack Park residents' perception towards whether New York State has done a good job acquiring new land in the Adirondack Park n=329

Has Done A Good Job In Acquiring New Land	Frequency	Percent
Agree	96	29.2
Neutral	61	18.5
Disagree	96	29.2
Don't Know	76	23.1
Total	329	100.0

The forest products industry controls over one million acres; nearly a third of all private lands within the Adirondack Park. From the data collected, it seems apparent that park residents view the forest products industry as important in protecting the character of the park. Residents may believe that if forest products industry lands go out of production, these lands would then be sold for commercial development. As previous results have shown, residents believe increased development is changing the character of the Adirondack Park

(Table 2). Consequently, park residents may equate the protection of the forest products industry through state incentives as a way of protecting the Adirondack Park by reducing the opportunity for new development. Logically, park residents believe that if forest product lands are going out of production, the State of New York should buy them so these lands could be added to the forest preserve, which would also protect them from development.

Conclusions and Recommendations

The results of this study would indicate that park residents perceive the development rate within the Adirondack Park as being too fast which is, in turn, changing the character of the park primarily through declining environmental quality. Since most of the new development within the park is tourism and commercial recreation related, it can be speculated that much of residents' concern over development is related to changes in the visual and social environment as opposed to actual degradation of the physical environment (air pollution, water contamination, etc.). This can partially be seen in the fact that the opportunities for outdoor activities as perceived by residents are adequate and that forest preserve lands are not perceived as being overused. Consequently, much of the change in character of the park as viewed by residents may be associated with increased crowding, changing landscapes (natural to vacation homes, tourism supported businesses, etc.) and changing community composition (rural/traditional to seasonal/recreation). Associated economic growth (i.e., jobs) does not appear to offset residents' negative view of increased development.

Increased interaction between New York State land use regulatory agencies and park residents may help alleviate residents' sense of loss of control to those who live outside park boundaries and to some degree help coordinate planning for future growth. However, as the results of this study point out, park residents are not knowledgeable concerning the constitutional protection of the Forest Preserve. Consequently, park residents may not understand the different management mandates under which the Department of Environmental Conservation and Adirondack Park Agency work. This misunderstanding may play a major part in the historical animosity between park residents and Adirondack Park management agencies. A public education program directed at park residents which would explain the unique land management concept under which the Adirondack Park is based on, along with the specific roles of DEC and APA may allow for a more productive atmosphere in which residents and agency personnel can cooperate in working towards resolving problems related to development.

Finally, park residents perceive the forest products industry as being important in protecting the character of the Adirondack Park. This protection of the park is primarily related to keeping the forest products industry land in timber management and not letting these lands become available to be sold for commercial recreation and tourism development. Although simplistic in design, residents' perceptions of the importance of supporting the continuation of a strong forest products industry in the Adirondack Park needs to be pursued by appropriate New York State agencies and where feasible, new public lands should be acquired for the park when the forest products industry makes them available.

The Adirondack Park is at a crossroads. Understanding park residents' perceptions concerning changing land use is an important step to beginning the process of planning and managing for the Adirondack Park of the future.

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THE EFFECTS OF THE INDIVIDUAL, SPATIAL ACCESSIBILITY AND ACTIVITY ON RECREATIONAL TRAVEL DEMAND¹

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Traditional recreation demand modeling fails to account for multiple destinations visited by recreators. This research investigated the individual travel choice of outdoor recreationists. The degree to which park diversification was influenced by the individual's socio-economic background, relative accessibility of resource opportunities and the purpose of the trip was identified. Participation in various outdoor recreation activities was found to be the best predictor of travel behavior.

Introduction

In order to manage park resources, planners and managers need to assess the demand for recreation. Traditionally, recreation participation has been thought to be a function of various factors, including socio-economic characteristics, site attractiveness and availability, and on-site experiences (i.e. the presence or absence of congestion). Socio-economic characteristics often dictate the extent of the opportunity for an individual to recreate (Smith and Munley 1978). Site attractiveness measures describe the observed or perceived attributes of the park. These resources will act to modify how much time the recreator actually allocates to an activity (Cicchetti et al. 1969). Finally, the on-site experience may influence future recreation demand. When incompatible activities come into contact with one another, conflict may occur (i.e., Jacob 1977) and change future park selection.

This research seeks to investigate these influences on the travel demand. First, a background literature review will be provided. Next, the data for analysis and the model will be introduced. The results of the analysis are then given and the paper will conclude with a discussion of recreation travel demand estimation.

Literature

Travel occurs because people seek alternatives in space where participation in some activity takes place. Besides wishing to understand why people travel, a primary goal of travel research is to understand what factors might influence the decision making process (Burnett 1981). In this manner, planners can identify the determinants of patronage patterns in order to estimate the returns on investments. In particular,

¹ This paper is based, in part, from the authors' Doctoral dissertation at the Department of Geography, Southern Illinois University at Carbondale.

recreation travel is assumed to be a function of the individuals' socio-economic and demographic characteristics, the relative availability of alternative park resources and the activity chosen for participation. Each of these factors can influence the demand for recreation and will be addressed in the literature review.

Travel Behavior

Recreation travel behavior is considered to be an example of utility maximizing behavior (Hanson 1980). However, unlike travel to work, recreation choice behavior is voluntary. Early attempts at recreation demand modeling are best typified by aggregate gravity models. Because demand is estimated by an aggregate approach, Timmermans and Van der Heijden (1987) argue against using these techniques because the utility functions of individuals are "lumped" together. Dissaggregate techniques (or behavioral models) allow for a much refined definition of the individual recreator's preferences (Young and Smith 1979).

Recreation travel behavior can be viewed in one of two ways; either people visit the same place repetitiously or they tend to exhibit diversified travel. For example, some people may elect to visit the same fishing hole time and time again while others seek variety in choosing places to hike. It has long been thought that much of travel was exemplified by repetitious patterns. Marble and Bowlby (1968) found people would repeat visits 75% of the time indicating a degree of travel concentration. Recently, geographers have questioned this belief attributing these findings to poor research design (Hanson and Huff 1988).

Hanson (1980) reviewed the travel behavior literature and found several possible explanations of variety or diversified travel behavior. First, an individual may be motivated to diversify travel from the desire to reduce uncertainty by learning about the available options. Second, travel diversification may result from an interest to spread risk by developing a portfolio of regularly visited destinations.

A third possibility for travel diversification may come about because of temporal, spatial and modal constraints. In a recreation context, this could be the experience for the family who takes a weekend picnic at the local state park and goes to the Great Smoky Mountains for the family vacation. Another reason Hanson (1980) found, was the need to reduce boredom by adding variety. This serves to stimulate interest in the National Park Services' "Passport" program where visitors collect the passport stamp for each of the NPS properties. Fifthly, a recreator may seek different destinations for different reasons. Hanson (1980) concludes her review by identifying the unique nature of spatial diversification among several types of activities. Certain activities are shown to encourage diversification and an example would be going to restaurants. On the other hand, people tend to visit the same gas station or the same post office.

Socio-economic and Demographic Characteristics

The Outdoor Recreation Resource Review Commission (ORRRC) report in 1962 found that certain user characteristics were highly correlated with participation. A more recent review by Walsh (1986) identified factors significant in explaining recreation participation. Education is one and has been shown to vary systematically with participation. Income is a limiting factor on demand, since it constrains rather than produces the experience.

Other socio-economic and demographic characteristics include race, place of residence, occupation and marital status. Race is an important issue in outdoor recreation provision, since the non-white population in the United States are projected to exceed the white population (Hartmann and Overdevest 1990).

Alternative Destinations and Spatial Structure

Spatial structure refers to the effects of alternative park destinations on travel. Cordell and others (1985) recognized the demand model is incomplete without considering the available market. Their findings stem from the earlier work of Rushton (1969) who suggested that because alternative destinations may be located differently with respect to individual visitors, one should expect visitors to exhibit different patronage patterns.

Consider Figure 1. A household facing a relative abundant supply of recreation opportunities in Figure 1a might be expected to participate more often and at more sites than those households in an inaccessible region (Fig. 1b). The question that remains is how to measure spatial structure. Pirie (1979) reviewed the accessibility literature and found four broad categories of measure that have been used to define accessibility, including cumulative opportunity. This approach provides an index for accessibility to sites according to the number of alternative destinations within each distance zone. Opportunity indices have been tested in recreation demand studies and has been shown to improve demand estimation (Lieber et al. 1989). Since this procedure is simple and maintains individual level data, it is chosen for this research.

Activity Choice

Another major problem in projecting recreation demand has been the failure to recognize that the chosen activity is undertaken at a specific park resource and is

therefore intrinsically linked to the physical resource base. This relationship is important since it is the resource base that is managed for the provision of the recreation experience (Driver et al. 1987). In considering water based environments Ditton and others (1975) found the environmental variables were major determinants of travel behavior. For example, "Fishing in a stream is quite unlike trolling in Lake Michigan, and the activity at a beach is quite unlike that of a pool" (Ditton et al. 1975:292). Because of these differences, different travel strategies can be expected for different activities.

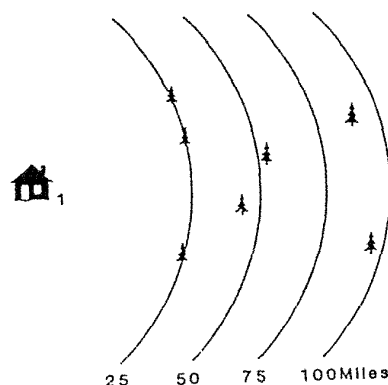
The Data

The analyses identified in this research is based on the Illinois Department of Conservation household data gathered for the 1979 Illinois State Comprehensive Outdoor Recreation Plan (SCORP). The project utilized a random telephone survey. The questionnaire included personal, socio-economic and demographic information about the household, levels of participation in 20 different outdoor recreation activities and the places where each activity took place. For each household the total number of activities participated in over the previous year were tallied as well as the total number of unique park resource destinations visited for those activities.

In order to identify the available market for each household, the spatial opportunity indices were calculated. The number of public recreation facilities were counted in 25 mile increments, up to 100 miles (measured in euclidean distance). The indices were standardized in order to measure the availability of recreation opportunities with respect to the maximum available within each travel zone. This procedure eliminates the bias of the increased areal size of travel zones as one travel further from the household origin.

The final sample size for this study is 6,474 households who participated in at least one activity and traveled to at least one destination.

a. An accessible household



b. An inaccessible household

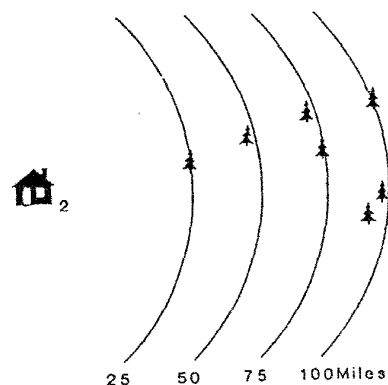


Figure 1. Relative Accessibility of Park Destinations.

The Model

Conceptually, one can illustrate the possible relationships between the number of park destinations visited and the number of activities selected by a household (see Fig. 2). A slope of unity (1) is found when each activity is totally destination-dependent and all other activities are not found at that resource. A waterslide may be an example of this. Any deviation from this line indicates a tendency of recreators to either visit several sites or concentrate visits at a single area.

Some activities should lead to a decrease in the number of alternative destinations chosen relative to the number of activities that are undertaken by recreators. A slope of less than one illustrates this relationship where people continue to visit the same park time and time again either for many activities or just a few. Alternatively, people may seek variety in the park setting and visit more parks. This travel diversification may be the result of conflict at a earlier visit or because of some function of the richness (availability) of alternative parks.

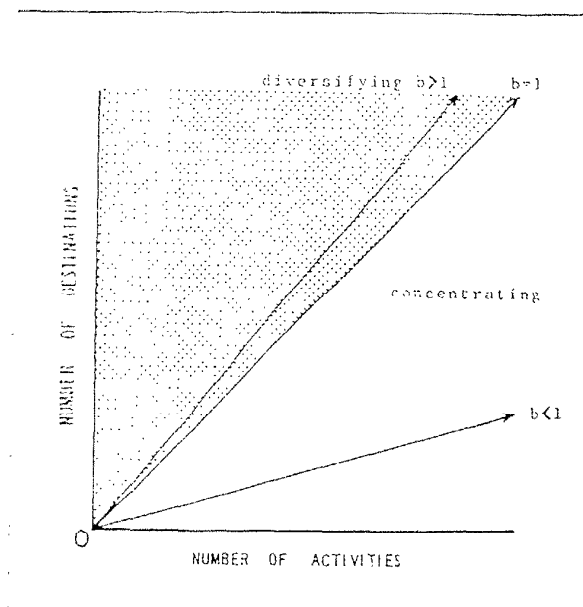


Figure 2. Hypothetical Relationship between number of park destinations and number of activities (Fesenmaier and Lieber 1988).

Results

This section specifies the procedure to test the model. To evaluate recreation demand as a function of the individual, spatial structure and activity, a multiple regression equation was calibrated incorporating an ordinary least squares (OLS) regression. The results of this analysis is provided in Table 1. Positive parameter estimates indicate the propensity of that factor to influence travel diversification whereas the negative estimates influence travel concentration. A strong correlation is found between the explanatory variables and travel diversification. Over 50% of the variance is explained in this model and is statistically significant at the 0.0001 level.

Table 1. Multiple Regression Analysis for Participation in Recreation Activities, Socio-economic Characteristics and Spatial Structure

Variable	Estimate	Significance
Intercept	0.8847	0.0001
Canoe/Rivers	0.7544	0.0001
Canoe/Lake	0.3393	0.0001
Sailing	0.4992	0.0001
Boat < 10hp	0.5566	0.0001
Boat > 10hp	0.6745	0.0001
Day Hiking	0.6806	0.0001
Backpacking	0.6781	0.0001
Group Camping	0.6142	0.0001
Camping enroute	0.9303	0.0001
Primitive Camping	0.5492	0.0001
Drive to Camp	0.7424	0.0001
Bicycling	0.7086	0.0001
Horseback Riding	0.6194	0.0001
Snowmobiling	0.4606	0.0001
OR Motorcycling	0.6745	0.0001
OR Driving	0.5190	0.0001
Beach Swimming	0.6668	0.0001
Pool Swimming	0.7332	0.0001
Lodging w/ Kitchen	0.5624	0.0001
Lodging w/out Kit	0.7957	0.0001
% of Max. Parks (0-25 miles)	-0.0030	0.0339
% of Max. Parks (26-50 miles)	-0.0030	0.0186
% of Max. Parks (51-75 miles)	0.0000	0.9806
% of Max. Parks (76-100 miles)	-0.0013	0.2078
Education (yrs.)	0.0213	0.0040
White/Non White	0.2286	0.1753
Student/Non-student	0.0924	0.1753
Own Home	0.0217	0.6438
Live in Suburb	0.2480	0.0138
Live in Large City (pop. = 250,000)	0.0770	0.2634
Live in Mod. Town (pop. = 50,000)	-0.1010	0.0390

R-Square = 0.5145; Adjusted R-Square=0.5126; F-Value= 213.26; Prob>F=0.0001; DF=6472.

The high positive estimates for activity participation indicate that all activities influence park visitation. All activities are statistically significant at the 0.0001 level. Simply knowing what activity a household may participate in dictates to a great extent how many parks they may visit. For example, the high parameter estimate for camping enroute is characteristic of a family vacation and staying at a KOA type campground. Several different campgrounds will be patronized as the family travels. On the other hand, the low estimate for canoe trips on lakes may illustrate a tendency to visit a favorite lake over and over again. This form of "brand loyalty" is consistent with the consumer behavior literature.

The spatial structure variables yield negative parameter estimates. Recall, that these are measures of the available market of park resources in the state of Illinois and large values for the measure is an example of a poor opportunity set. Small measures represent a rich opportunity set. The results in this part of the multiple regression equation show that only opportunities within 50 miles of the household are statistically significant. These measures, however, indicate a slight degree of travel concentration as the number of nearby facilities decrease below the maximum available in the state. This is also characteristic of visitation to many sites (or travel diversification) as the number of potential sites increase close to home. Beyond 50 miles, the measure of spatial structure become insignificant.

Most of the socio-economic variables have a positive parameter estimate (the variables identified here are a statistically significant subset of a much larger group that describe Illinois' citizens obtained through a step wise regression). This implies a tendency to increase park diversification as the measure increases in value. Educational attainment, race (binary code white equal one, zero otherwise) and whether or not the household lives in the suburb all influence statistically the park travel. Living in a moderately sized town of 50,000 yields a negative parameter and can help explain travel concentration for Illinois' recreators.

The analyses presented in this paper were evaluated using various procedures and only one model is presented here. A complete study is found in Bristow (1989).

Discussion

The purpose of this paper was to investigate the park visitation patronage for Illinois' recreators. Traditional demand models for recreation had often assumed repetitive travel behavior. Geographic literature suggests that variety seeking motivations which underlie destination diversification in travel behavior invalidates the earlier assumption of a stable utility function for recreation demand. To what extent this travel behavior varies in Illinois, was investigated here. Recreational travel is assumed to be a function of the household's socio-economic and demographic characteristics, the relative availability of alternative park resources, and the activity chosen for participation.

It was found in this paper, that the individual characteristics of the household were significant in estimating recreational travel, but overall, left much variation unexplained. Increased education, being white and living in a suburb all influenced travel diversification. For those Illinoisians living in a moderately sized town, one could expect travel concentration. Therefore, it is anticipated that other factors can explain this type of recreation behavior. Despite these findings, other studies confirm the failure of household characteristics in predicting recreation travel (eg. Hanson and Hanson 1981).

The second area discussed in this paper considered the available market from which the recreators may choose from. Opportunity indices as a measure of accessibility were evaluated. Like the socio-economic variables, only limited explanation was found. Travel concentration was predicted when fewer sites are available nearby. This makes sense, since the opportunity must be there for the travel to occur.

Household participation in any of twenty different outdoor recreation activities was tested. Over fifty percent of the variance was explained with these variables alone and this increase only modestly when the socio-economic and spatial structure measures are added. These findings are the most important of this study; since simply knowing what type of activity one might undertake, can identify the magnitude of travel diversification. For instance, recreation planners can extrapolate the results for future recreation provision. If you know how many people may camp enroute or stay in a lodge without a kitchen, you know that these people tend to visit several sites or diversify recreation travel.

On the other hand, persons who canoe on lakes or may snowmobile, lean toward travel concentration. These findings are particularly important for resource provision, since needless capital expenditures can result from the over provision of some facilities and some potential demand met for those facilities yet to be constructed.

This paper has shown that site diversification can be adequately explained by simply knowing what type of recreation activity is selected. Some activities will encourage travel diversification, while others do not. The implications of the behavioral model tested are important for several reasons. First, individual choice models are policy sensitive. At the disaggregate level, individual differences can be identified to the degree to which they may contribute to recreation travel. Second, the data needed for this model is easy to obtain since only two types of information is needed: what do you do and where do you go?

Future unresolved questions include a need to find a better measure of spatial structure. Accessibility measures have been shown to be significant in other studies of recreation demand and it is expected the influence should be present here. Another area of further study involves a refinement of how to measure participation. In this study, participation was a dichotomous variable; either yes or no.

Earlier calibration of the model utilized cardinal measures of participation (i.e., frequency) but problems in interpretation arose. Any steps in refining what factors influence the recreation decision-making process will aid managers in the mandate of resource provision.

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MARKET SHARE ANALYSIS OF SELECTED RECREATION ACTIVITIES IN THE NORTHEASTERN UNITED STATES: 1979-1987

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An analysis of nine years of data for two recreational activities -- golf and tennis were undertaken to analyze market share trends and the distribution of participation by participation days and volume rate by supplier type in the Northeastern United States. Data were drawn from the 1979 through 1987 Simmons Market Research Bureau's *Study of Media and Markets*. Keywords: Golf, tennis, market share, public, private, marketing, trends, Northeastern United States.

Introduction

Research has shown that municipal recreation and park agencies serve a narrow and very limited range of clients (Howard and Crompton, 1984; Howard, 1984). On the other hand, research has also indicated public agencies are the market share leaders for tennis and provide a significant proportion of the demand for golf played in the United States (Warnick and Howard, 1985, 1987 and 1990). However, the leading position in the provision of tennis has eroded over the decade of the 80s for the public sector. Additional insights into the market analysis of golf indicate a rapidly changing marketplace. Furthermore, research has indicated that many activities differ by participation rates and market size when examined within a regional context (Warnick and Vander Stoep, 1990). Intense competition among recreational activity providers has resulted during the last decade with more private and non-profit firms vying for customers' loyalty. To be effective in marketing and planning in a more competitive marketplace, agencies must monitor their market shares. However, to date no regional market share analysis has been conducted to determine if regional market shares for the provision of activities are similar to national market share trends. In this regard, the Northeastern United States was selected to determine if such patterns exist at the regional level.

Market share analysis of selected public leisure services was first reported by Warnick and Howard (1985). In their study, participation rate data for a variety of selected recreational activities were examined by participation rates and participant profiles (use segments), and by three specific market share comparisons for golf, tennis and racquetball for the years 1979 through 1982. The first study was then updated in 1987 and included market share data from 1979 through 1985 (Warnick and Howard, 1987) and again in 1990 with market share data from 1986 and 1987 (Warnick and Howard, 1990). Unlike these other studies, the purpose of this study is to examine market share analysis within the Northeastern United States for the nine-year period of 1979 through 1987 for two activities -- tennis and golf.

Market share data, when examined within the nine year context of 1979 to 1987, provide an opportunity to monitor both longitudinal and regional trends of the public and private sectors. They also serve to address a number of important marketing questions at a more refined level. What have these trends indicated in regard to public agency management performance over an extended period of time within a specific region? Is there a clear trend toward privatization of the delivery of these activities within the Northeast? What strategic market concepts should or could public and private agencies apply? These questions among others served as the focus for this study.

Purpose of the Study. The purposes of this study were two-fold: 1) to examine market share data by suppliers for two recreation activities -- golf and tennis; and 2) to examine the distribution of participation in these activities by: a) volume size (number of participation days) and b) volume rate (activity play rates or days played per year) within the Northeast.

Methods

To analyze the market share data and the recreational participation rates, data were compiled from the annual surveys conducted by Simmons Market Research Bureau, Inc. (1979 through 1987). This research firm annually measures participation rates, demographic composition, and media use patterns of a wide variety of leisure and sport activities. Each respondent received a self-administered questionnaire which was followed by a telephone interview. The national sample sizes ranged from approximately 15,000 individuals in 1979 to 21,000 adults in 1987. Results were then projected to the adult population, aged 18 years and over, living in the coterminous 48 states of the United States. Respondents were asked questions regarding their participation in golf and tennis during the previous 12 months for the year in which the survey was administered. The respondents indicated the frequency of play or participation, their demographic characteristics, and their media usage patterns. Simmons Market Research Bureau (1987) goes beyond reporting these national statistics by providing information on where the recreational activity occurred or the identification of supplier type. Data were not available for 1981.

Respondents who played golf and/or tennis were asked to indicate where their participation occurred -- whether it was at a municipal, country club, private facility, daily fee or other facility (e.g., resorts, corporate fitness center, condominium complexes, etc.). A "do not know" category was also provided for those who could not recall where they played the activity. Respondents could select more than one facility category. These responses provide the opportunity to examine the distribution of play among the various suppliers for the two selected activities or to determine each supplier's market share. This information is further refined by providing data on the distribution of play by region. Simmons (1987) provides information by region for four areas of the United States: Northeast, South, Midwest or North Central and West. The Northeast includes all states North of the Mason Dixon Line (Pennsylvania, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire, and Maine).

The variables examined in this study include market share, distribution of volume levels of all players for tennis and golf and distribution of volume levels by players by

region by two volume levels (frequent and light to moderate), and participation days. Market share is the proportion of all activity days played in the activity that is held by each type of provider or facility. Market share is reported as a percentage. For golf, provider or facility types are defined as country clubs, private clubs, daily fee, public or municipal and other, which includes other unidentified private facilities and a "do not recall" category. For tennis, facility types are defined as country clubs, private clubs, public or municipal and other, which includes other unidentified supplier types and a "do not recall" category. The distribution of volume levels of all players for golf and tennis is defined in "activity days played" categories (1 to 4 days played, 5 to 9 days played, 10 to 14 days played, 15 to 19 days played, 20 to 24 days played, 25 to 29 days played, 30 to 39 days played, 40 to 49 days played, 50 to 59 days played, and 60 or more days played). Simmons (1987) provides the distribution of all players who play at each of these rates. By knowing the number of players within each category and assuming the median or midpoint of each category for the days played, an estimate of the volume or participation days played for each category may be obtained (by multiplying the number of players within each "days played" category by the midpoint of "days played" category). An estimate of total activity volume (participation days or user days) may be obtained by totaling the estimates of each category. A example of these calculations for golf is provided in Table 1.

Simmons further provides information by region (Northeast, South, Midwest and West) for all participants by two broad volume categories -- "frequent/moderate" players and "light" players. These broad volume categories are defined for the "light" participants as the activity day

categories of 1 to 4 and 5 to 9 days played and for the "frequent/moderate" participants all categories above 10 or more days played. By knowing the distribution of players by these broad participant categories and the distribution of players within each of the smaller subcategories (i.e., for example, "light" players include days played categories 1 to 4 and 5 to 9 days played, etc.), one may obtain an adjusted volume of participation days by region. This adjusted volume of participation days can be converted to a volume rate by dividing the total adjusted participation days by the total number of players. This adjustment can be made for each region. Finally, since Simmons provides the number of players by supplier type, one may then calculate the volume (participation days) by supplier by multiplying the number of players who played at the selected facility (supplier type) by the volume rate. This assumes that volume rates are constant across all facility types. (This assumption is a limitation and will be more fully discussed in the closing section.) An example of these adjustments for golf is presented in Table 2. Market share percentage may then be calculated for each supplier once the total number of participant or activity days for each supplier are estimated. Participation rate is not a variable examined within the context of this study, but is referred to in this study from time to time. It is defined as the percent of the total adult population that participates in the selected outdoor recreation activity.

Selected Findings

Market share findings are presented first at the national level followed by the Northeastern U.S. regional analysis. This is followed by a brief presentation of the participation volume or user days played at each type of facility.

Table 1. Adjustments to volume rates of golfers and distribution of golfers by use level for 1987.

N= 173,681 (in thousands, US adult population in 1987)

Distribution of All Players by Days Played

No. of Days in 12 Months	Participants '000	Percentage of Total US Population	Percentage of Participants by Use Level	Part. Days within Category	Total Estimate Participation Days ('000)
1-4	6,696	3.9%	35.4%	2.8	18,414
5-9	3,413	2.0%	18.1%	7.0	23,891
10-14	2,209	1.3%	11.7%	12.0	26,508
15-19	1,289	0.7%	6.8%	17.0	21,913
20-24	1,465	0.8%	7.7%	22.0	32,230
25-29	742	0.4%	3.9%	27.0	20,034
30-39	825	0.5%	4.4%	34.5	28,463
40-49	361	0.2%	1.9%	44.5	16,065
50-59	489	0.3%	2.6%	54.5	26,651
60 or More	1,415	0.8%	7.5%	60.0	84,900
Total	18,904	10.9%	100.0%	15.8	299,068

Distribution by Region of Light and Moderate/Frequent Players

Region	Total Players ('000)	Percent Total Players	Moderate & Heavy Players ('000)	Percent Moderate & Heavy Players	Light Players ('000)	Percent Light Players
Northeast	3,360	17.8%	1,914	57.0%	1,446	43.0%
Midwest	6,611	35.0%	3,045	46.1%	3,566	53.9%
South	4,830	25.6%	2,251	46.6%	2,579	53.4%
West	4,102	21.7%	1,585	38.6%	2,517	61.4%
Total	18,903	100.0%	8,795	46.5%	10,108	53.5%

(Source: Simmons Market Research Bureau, Inc. Study of Media and Markets, 1987)

Table 2. Example of adjustment to volume rates by distribution of players at facility types in the Northeast for 1987.

Days Played Level	Name of Play Level	Players within Category (a)	Part.Days in Category	Total Estimate Participation Days ('000)
1-4	Light	1307	2.8	3,594
5-9	Light	668	7.0	4,676
10-14	Moderate	658	12.0	7,896
15-19	Moderate	385	17.0	6,545
20-24	Moderate	438	22.0	9,636
25-29	Heavy	220	27.0	5,940
30-39	Heavy	246	34.5	8,487
40-49	Heavy	107	44.5	4,762
50-59	Heavy	147	54.5	8,012
60 or More	Heavy	422	60.0	25,320
Total All Facility Types		4,598	18.5	84,867
			Adj. Vol. Rate	

(a) Total number of players for all facilities does not correspond to total number of participants in the Northeast in Table 1. Simmons counts players who play at each facility more than once as players may use more than one facility type.

(Source: Simmons Market Research Bureau, 1987)

National market share analysis of golf and tennis. At the national level for golf, public providers were found to be providing a substantial share of the total participation. However, the public's market share peaked in 1983 at 27 percent and fell to 22 percent in 1984. It has held at between 22 and 23 percent through 1987. Market share provision of golf by country clubs has not changed drastically over the years. It has fluctuated and was at its highest rate in 1981 (26.4 percent). From 1982 through 1987, the country club share remained between 22 and 25 percent. The country club share was 24 percent for 1986 and 1987. Daily fee courses have also increased market share during the 80s. Daily fee share was highest in 1979 at 30.6 percent and dropped to approximately 23 percent in 1981. Their share did, however, grow from 23 percent to as high as 26 percent in 1983 and 1985. The daily fee market share fell to 20 percent in 1987. For the most part, market share growth in golf has been achieved by private clubs and other private providers (resorts, hotel complexes, etc.) at the national level. The private club share was 9.9 percent in 1982 and grew to nearly 15 percent by 1985. It dropped to 13.9 percent in 1986 and to 13.4 percent in 1987. Other providers held less than two percent of the market for golf in 1980 and by 1986 their share had grown to nearly seven percent. It appears that in this increasingly popular activity, municipalities or public agencies are losing market share to the private sector. (See Fig. 1.)

In the case of tennis, municipal or public suppliers still provide a major share of the market. Over 30 percent of all tennis played in 1987 was played at municipal or public courts; however, one must remember the amount of tennis played on an annual basis is declining dramatically (Warnick and Loomis, 1990). While public suppliers were the market share leaders in a declining tennis market, the share held by them also continued to decline. Public providers of tennis held approximately 44 percent of the market in 1979. Their share fell to 30 percent in 1987. There was a share spike in 1986 when the share jumped to 38 percent, but the overall trend pattern is one of decline for the public provision of tennis. (See Fig. 1.)

Although tennis was a less popular activity in the 80s, other suppliers, private clubs and miscellaneous providers

(resorts, corporate fitness centers, etc.) have been gaining more of the available market since 1979. The share for private clubs went from 12 percent in 1982 to 17 percent in 1985 and has since returned to approximately 13 percent in 1986 and 1987. The share held by other providers (resorts, corporate fitness centers, etc.) fluctuated during the 80s. Their share was only 14 percent in 1980 and climbed to as high as 22 percent in 1981 and 1982 and was 21 percent in 1985. The share stood at 17 percent in 1987 for other providers. (See Fig. 1.)

Northeastern U.S. market share analysis for golf and tennis. In the Northeastern United States, daily fee providers of golf have been the market share leaders for six of the eight years examined here. However, the share held by daily fee courses has declined steadily from 1983 through 1987. In 1983, daily fee courses held 32.6 percent of the market. The share declined to 19.1 percent by 1987. Country clubs, for the most part, have held the number two position in market share for golf in the Northeast. Their share was 21 percent in 1979 and grew to 28.2 percent in 1982 when for one year, they held the lead. The country club share dropped to 18.7 percent in 1983, but since then increased steadily through 1986 when the share was 23.3 percent. Their share dropped slightly in 1987 to 21.1 percent. Public providers of golf held for the most part a stable market share position with the exception of 1984. In 1980, public agencies held 16.5 percent share. This share increased to 18.4 percent in 1983 and then fell to 12.5 percent in 1984. However, the share for public agencies returned to 19.7 percent level in 1985 and grew to 20.5 percent share by 1987. Although private clubs held the lowest share of all golf played for several years during this period, their share has increased steadily, nearly doubling from 1982 (9.8 percent) through 1986 (17.8 percent). Finally, the share provided by the "other" category revealed no consistent pattern, with exception of a moderate increase from 1985 through 1987. In fact, the data indicate that the highest share in 1987 was within the "other" category (25.4 percent). (See Fig. 2 and Table 3.)

In the case of tennis in the Northeast, municipal or public suppliers provided a major share of the market in the early 80s. Over 44.2 percent of all tennis played in the Northeast in 1980 was played at municipal or public courts. The public provision of tennis declined steadily from 1980 through 1982, but after 1982 the public's share was stable and actually increased very slightly through 1986 when it reached 38 percent and then declined in 1987 to 32.7 percent. The market share pattern for private clubs appears to have indicated an upward trend in the Northeast; however, decreases in share performance in 1983, 1985 and 1987 offset any such generalization. Country clubs, which are well behind the other providers in terms of market share, improved from nine percent in 1980 to 10.7 percent by 1983; however, since 1983 the market share pattern has been one of slow decline. The "other" category has also fluctuated over the time period examined here. It is difficult to generalize due to the types of facilities in this supplier category; however, it appears that more tennis was being played at these types of facilities in the Northeast by the end of the period examined here. Nearly 50 percent of all tennis played in 1987 was identified within this category of "other" provider. (See Fig. 2 and Table 3.)

Participation days for golf and tennis. While different agencies may find it valuable to know their relative position within the marketplace, a key variable for all agencies is business transactions. Business transactions for

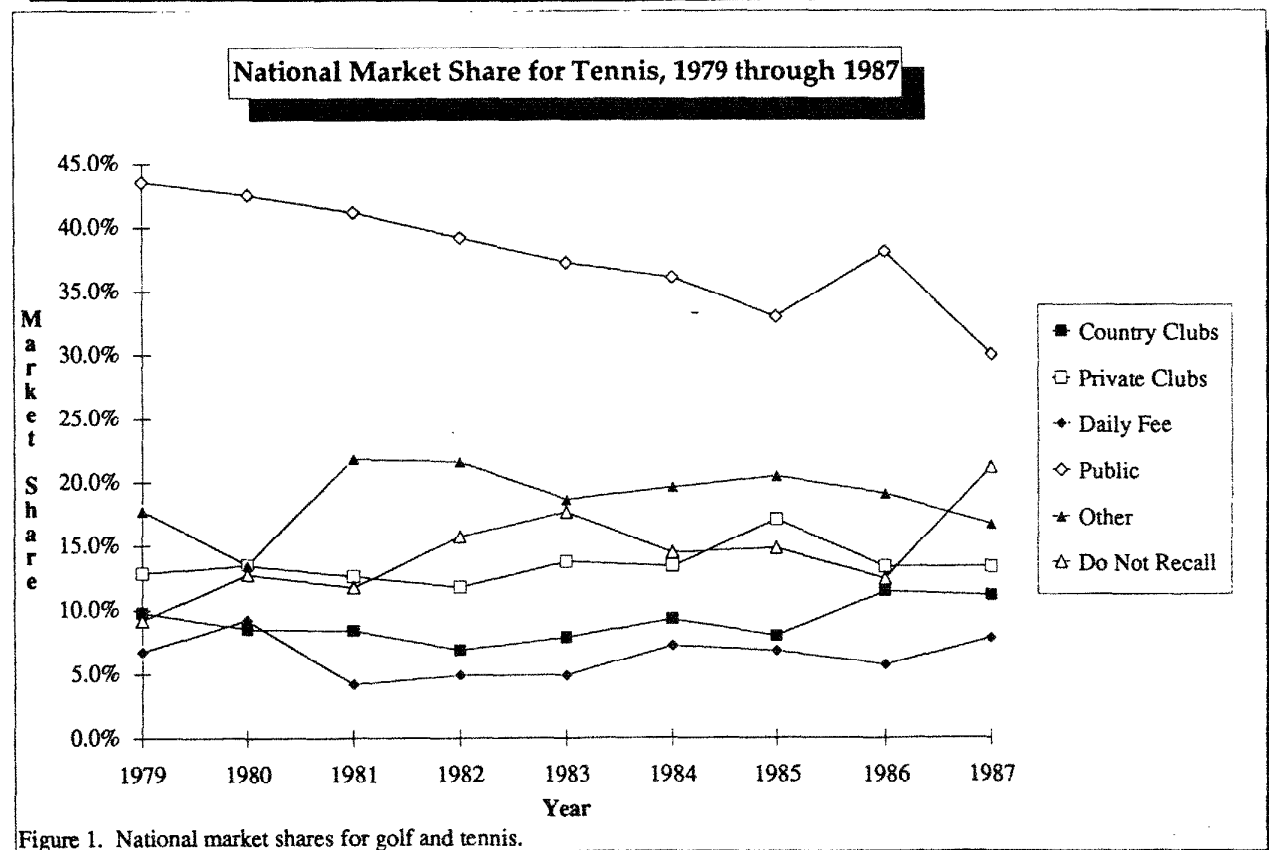
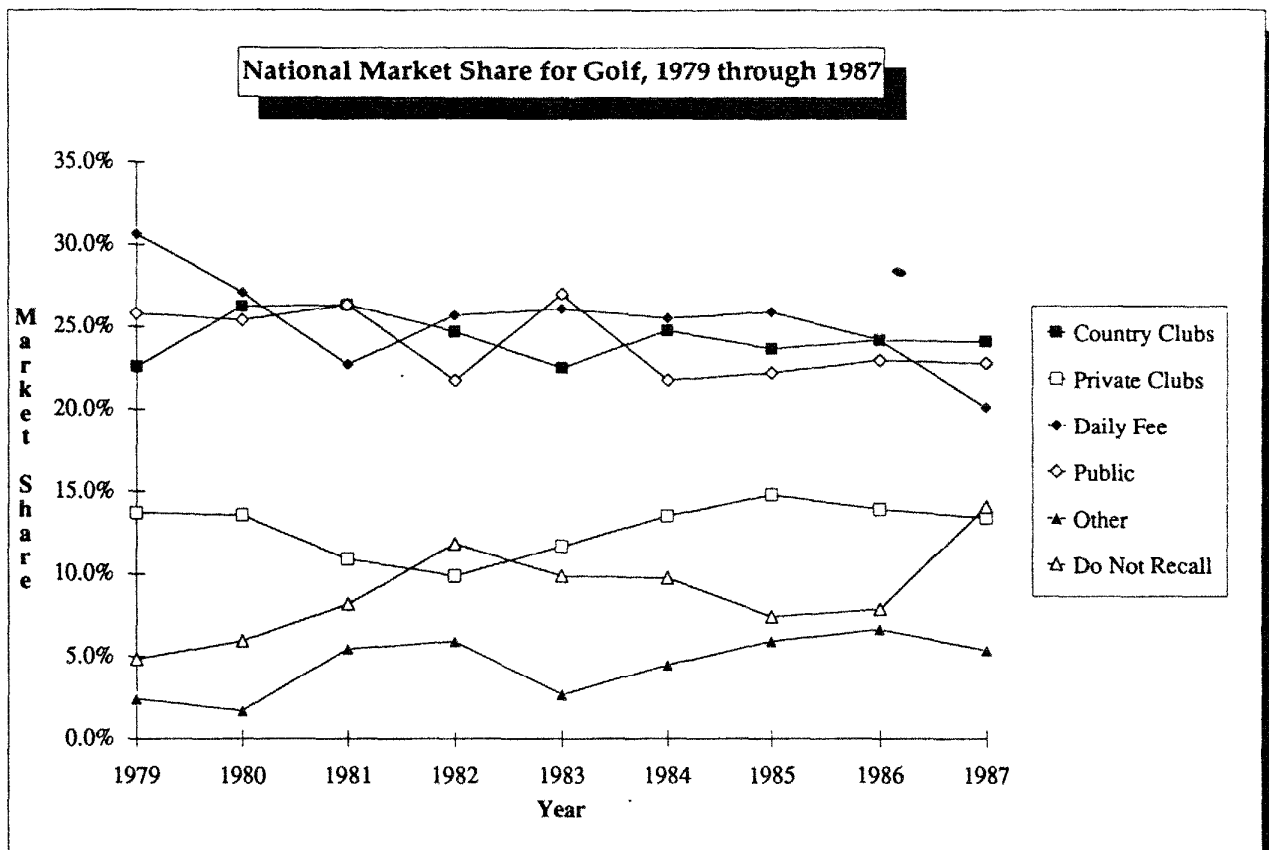


Figure 1. National market shares for golf and tennis.

Table 3. Market share and participation days for golf and tennis from 1979 through 1987 in the Northeastern U.S.

Year	Total NE Fac. Parts. (000) (a)	Annual Volume Rate	Total Part. Volume (Days, '000)	Country Club Part. Days (000)	Market Share %	Private Club Part. Days (000)	Market Share %	Daily Fee Part. Days (000)	Market Share %	Public/Municipal Part. Days (000)	Market Share %	Other Part. Days (000)	Market Share %
Golf:													
1979	3,841	16.09	61,802	13,001	21.0%	10,475	16.9%	19,115	30.9%	10,185	16.5%	9,026	14.6%
1980	3,492	17.18	59,993	15,840	26.4%	8,934	14.9%	17,610	29.4%	9,432	15.7%	8,178	13.6%
1981	3,362	14.61	49,119	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1982	3,347	19.04	63,727	17,974	28.2%	6,264	9.8%	14,470	22.7%	11,215	17.6%	13,804	21.7%
1983	4,355	18.92	82,397	15,439	18.7%	9,138	11.1%	26,885	32.6%	15,136	18.4%	15,798	19.2%
1984	4,870	17.47	85,079	17,313	20.3%	11,024	13.0%	27,445	32.3%	10,674	12.5%	18,623	21.9%
1985	4,614	14.38	66,349	14,509	21.9%	10,368	15.6%	20,031	30.2%	13,100	19.7%	8,340	12.6%
1986	5,555	16.25	90,269	21,076	23.3%	16,039	17.8%	22,311	24.7%	17,420	19.3%	13,423	14.9%
1987	4,598	18.50	85,063	17,982	21.1%	11,877	14.0%	16,225	19.1%	17,409	20.5%	21,571	25.4%
Tennis:													
1979	5,825	16.92	98,559	12,859	13.0%	10,186	10.3%	0	0.0%	10,626	10.8%	64,888	65.8%
1980	5,405	16.17	87,399	7,842	9.0%	14,359	16.4%	NA	NA	38,646	44.2%	26,551	30.4%
1981	3,738	17.23	64,406	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1982	3,698	16.38	60,573	4,406	7.3%	11,957	19.7%	NA	NA	20,278	33.5%	23,931	39.5%
1983	4,560	15.18	69,221	7,438	10.7%	11,446	16.5%	NA	NA	24,394	35.2%	25,943	37.5%
1984	3,785	14.84	56,169	5,298	9.4%	10,581	18.8%	NA	NA	20,375	36.3%	19,915	35.5%
1985	3,233	15.47	50,015	3,465	6.9%	6,683	13.4%	NA	NA	17,775	35.5%	22,091	44.2%
1986	3,956	18.05	71,406	8,267	11.6%	14,765	20.7%	NA	NA	27,147	38.0%	21,227	29.7%
1987	2,627	19.68	51,699	2,598	5.0%	6,494	12.6%	NA	NA	16,925	32.7%	25,682	49.7%

(a) Total number of facility participants, participants may play at more than one type of facility.

(Source: Simmons Market Research Bureau, Inc., 1979 through 1987)

these activities would be best described as golfing days or tennis days -- the number of times the activity is played per year. The overall national market condition in terms of participation days (golfing or tennis days) for each of these activities portrays different life cycle conditions. For example, the amount of golf played in the United States has increased by 100 million days between 1981 and 1986. By 1987, the amount of golf played totalled nearly 300 million days. On the other hand, the amount of tennis played on an annual basis has declined from approximately 316 million days in 1979 to a low of approximately 189 million days in 1985. The amount of tennis played on an annual basis stood at 212 million days in 1987 (Warnick and Howard, 1990).

Within the game of golf at the national level, the number of days played at each type of facility indicated further differences. For example, the number of days played at private clubs dropped from 32 million days in 1979 to 22 million days in 1982. The number of days of golf played at private clubs then doubled by 1986. There were 44 million days played at private clubs in 1986. Perhaps more dramatic was the increase in days of golf played at other facilities (resorts, complexes, etc.). In 1980, less than 4 million days of golf were played at these facilities. By 1986, 21 million days of golf were played there. This was over a fivefold increase in participation volume. Also notable was the fact that the number of days of golf played by players who "did not know" or did not recall who the provider of the activity was jumped from 24 million days in 1986 to 42 million days in 1987 (Warnick and Howard, 1990).

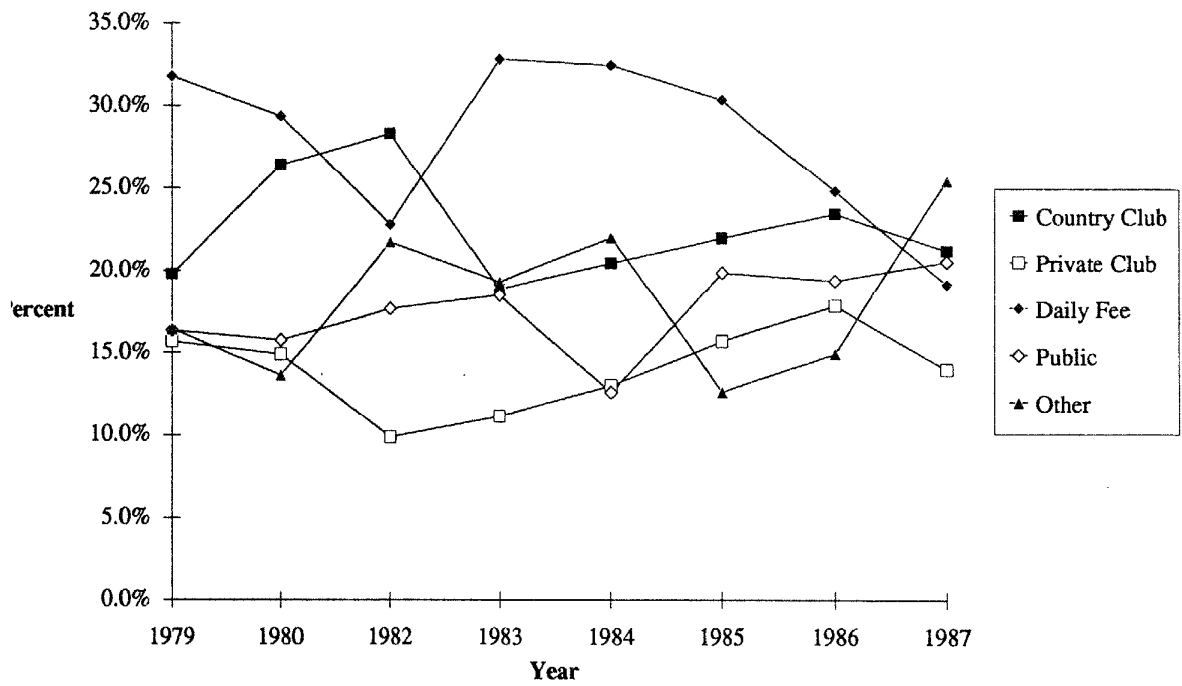
The decline in the number of days of tennis played at the national level by facility provider was most dramatic for public agencies. Approximately 137.5 million days of tennis were played at public facilities in 1979. This fell to 62.4 million days by 1985. The number of days played at country clubs increased from 15.2 million days in 1982 to 25.2 million days in 1986 with the exception of a drop to 15 million in 1985 (Warnick and Howard, 1990). Further insights about activity or participation days may be gained by

examining the within regional facility differences of the Northeast.

Golf days played by agency within the Northeast. In the Northeastern U.S., the number of golfing days grew from 49.1 million days in 1981 to 90.2 million days in 1986 and dropped off to 84.7 million days in 1987. The growth rate in number of days in this region has been significant -- an increase of over 50 million days played within a five year period. More insights are gained when the number of days played at different facilities are examined. Daily fee courses had the highest number of days played in 1984 -- 27.4 million days, but the number declined to 16.1 million days in 1987. Country clubs provided the highest number of golfing days in 1986 -- 21.1 million days. Golfing days at public courses grew from 9.4 million days in 1980 to 17.3 million days in 1987. Private clubs provided the highest number of golfing days in 1986, when 16 million days were played. However, the number of golfing days played at private clubs was only 11.8 million in 1987. The insights from the "other" category are somewhat misleading and should be reviewed with caution. The aggregation of "other private", miscellaneous other facility types and "do not recall", makes it difficult to identify any trends. One final observation from the data within region suggests that 1985 appeared to be a poor year for golf for private facilities. Participation days were down for all private and daily fee facilities. However, there was no decline for public facilities in 1985. (See Table 3.)

Tennis days played by agency within the Northeast. The number of tennis days declined dramatically within the Northeast region from 1979 to 1987. In 1979, 98.5 million days of tennis were played and by 1987 only 51.7 million days were played. There were two years, 1983 and 1986, when upward increases or spikes in the overall decline pattern were the exceptions. However, the general pattern in terms of participation days for tennis has been one of decline in the Northeast. Even within the public facilities which enjoyed an improving market share position for tennis in the Northeast from 1982 through 1986,

Market Share by Supplier for Golf in Northeast, 1979-1987



Market Share by Supplier for Tennis in Northeast, '79-'87

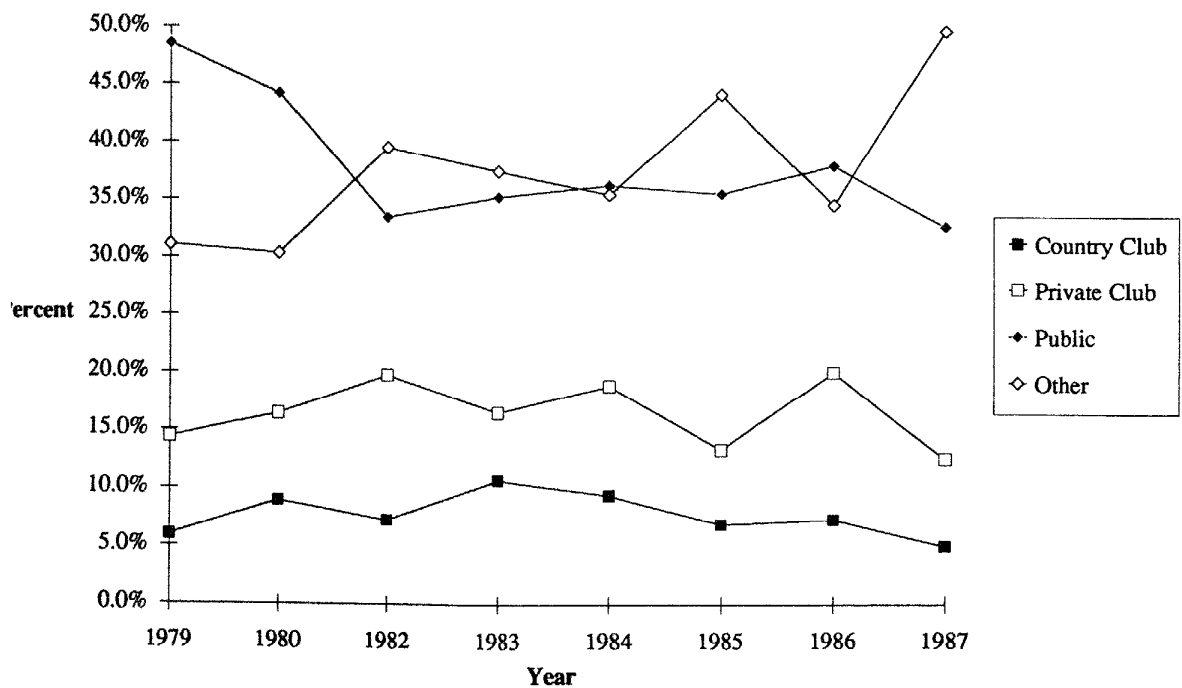


Figure 2. Market share for golf and tennis in the Northeast.

the number of tennis days played did not follow a corresponding growth pattern. The pattern was more up and down for public suppliers of tennis. The number of tennis days played between 1982 and 1986 peaked at 24.3 million days in 1983, declined to 17.7 million days by 1985 and then peaked again at 27.1 million days in 1986. The number of days played at public facilities in 1987 was 16.9 million days. The number of days played at private clubs declined from a high in 1980 of 14.3 million days to 6.6 million days in 1985. The number of days increased to 14.7 million days in 1986, but then fell again to 6.5 million days in 1987. Finally, country clubs experienced a similar pattern of decline in tennis participation days. In 1983, 7.4 million days of tennis were played at country clubs and by 1985 the number had dropped to 3.5 million. A sharp increase also occurred in 1986 when 8.3 million days were played, but the number of days played at country clubs in the Northeast stood at 2.6 million in 1987. (See Table 3.)

Participation types and distribution by region.

Market share analysis does provide insights into the distribution of play within each of the facility types for both golf and tennis. However, the distribution of player types should also be considered by region. Unfortunately, these data could not be further refined to examine them by the distribution of supplier type within the Northeast Region. Nevertheless, it is worthwhile to note that the distribution of player types does vary by region and has implications for managers and marketers of all types of facilities.

In the methods section, an example of the calculation of participation volume for golf for 1987 was presented. No analyses of these tables were presented, but it is important to present some of the additional regional differences by distribution of use levels and volume rate or days played per year for the time period of 1979 through 1987. For example, in 1987 when the distribution of use levels and volume rate for golf are compared to the national figures, the differences were substantial. At the national level, the distribution of light golfers (those who golf less than 10 times per year) comprise 53.5 percent of all golfers and moderate/heavy golfers (those who golf more than 10 times per year) comprise 46.5 percent of all golfers. In contrast, the Northeast golfers are distributed with 43 percent in the light category and 57 percent in the moderate/heavy category. The volume rate or average days played per year in 1987 were 15.8 at the national level and 18.4 in the Northeast. On the other hand, the West's golfers are comprised of 61.4 percent light players and 38.6 percent heavy players. The volume rate in the West in 1987 was 13.9 days played per year. Other comparisons between the regions for each of the years may be made by examining Table 4.

For tennis, substantial differences were also found. For example in 1987 at the national level, tennis players were distributed as 55.6 percent light players and 44.4 percent moderate/heavy players. In the Northeast, for the same year, tennis players were comprised of 38.2 light players and 61.8 percent moderate/heavy players. All other regions (the Midwest, South and West) were comprised of more than 50 percent light tennis players. The volume rate or average days played per year for tennis were 15.4 at the national level and 19.7 in the Northeast. All other regions volume rates in 1987 were below 16 days played per year. Other comparisons between the regions for each of the years may be made by examining Table 5.

Table 4. Use levels and adjusted volume rates for golf: 1979-1987 (a).

For Golf		Light	Moderate	Heavy (%)	Adjusted
Region	Year	Light/Mod. & Light (%)	& Mod. to Heavy (%)	'79 to '81 only	Vol. Rate (days/yr.)
Northeast	1979	43.9	26.9	29.2	16.09
	1980	69.1	***	30.9	17.18
	1981	75.6	***	24.4	14.61
	1982	42.5	57.5	***	19.04
	1983	40.0	60.0	***	18.92
	1984	50.0	50.0	***	17.47
	1985	57.3	42.7	***	14.38
	1986	52.5	47.5	***	16.25
	1987	43.0	57.0	***	18.43
Midwest	1979	28.2	45.5	26.3	16.14
	1980	68.3	***	31.7	17.44
	1981	72.8	***	27.2	15.47
	1982	50.1	49.9	***	17.04
	1983	51.9	48.1	***	15.96
	1984	55.3	44.7	***	16.04
	1985	52.2	47.8	***	15.60
	1986	49.4	50.6	***	17.04
	1987	53.9	46.1	***	15.70
South	1979	31.0	30.5	38.6	20.50
	1980	68.8	***	31.2	17.29
	1981	68.1	***	31.9	16.94
	1982	53.9	46.1	***	16.07
	1983	53.4	46.6	***	15.58
	1984	47.3	52.7	***	18.18
	1985	43.7	56.3	***	17.64
	1986	53.2	46.8	***	16.06
	1987	53.4	46.6	***	15.84
West	1979	39.2	27.1	33.7	17.91
	1980	67.2	***	32.8	17.82
	1981	68.6	***	31.4	16.77
	1982	53.9	46.1	***	16.06
	1983	55.9	44.1	***	14.92
	1984	53.0	47.0	***	16.66
	1985	53.8	46.2	***	15.22
	1986	60.5	39.5	***	14.19
	1987	61.4	38.6	***	13.85
US Totals	1979	34.3	34.1	31.7	17.55
	1980	68.3	***	31.7	17.44
	1981	71.3	***	28.7	15.94
	1982	50.2	49.8	***	17.02
	1983	50.2	49.8	***	16.37
	1984	51.8	48.2	***	16.97
	1985	51.7	48.3	***	15.71
	1986	53.3	46.7	***	16.03
	1987	53.5	46.5	***	15.82

(a) Simmons segmented golf use levels in 1979 by three groups ("light" - 1 to 4 days; "moderate" - 5 to 19 days; and "heavy" - 20 or more days). In 1980 and 1981, Simmons segmented golf use levels by two groups ("light/moderate" - 1 to 19 days and "heavy" - 20 or more days). From 1982 through 1987, Simmons segmented golf use levels by two groups ("light" - 1 to 9 days and "moderate/heavy" - 10 or more days). Source: Simmons Market Research Bureau, '79-'87.

Table 5. Use levels and adjusted volume rates for tennis: 1979-1987 (a)

<i>For Tennis</i>					
Region	Year	Light, Light/Mod. & Light (%)	Moderate & Mod. to Heavy (%)	Heavy (%) '79 to '81 only	Adjusted Vol. Rate (days/yr.)
Northeast	1979	29.0	41.3	29.8	16.92
	1980	65.4	***	34.6	16.17
	1981	58.8	***	41.2	17.23
	1982	50.0	50.0	***	16.38
	1983	53.1	46.9	***	15.18
	1984	54.3	45.7	***	14.84
	1985	53.7	46.3	***	15.47
	1986	39.7	60.3	***	18.05
	1987	38.2	61.8	***	19.68
South	1979	33.9	43.7	22.4	14.46
	1980	67.9	***	32.1	15.43
	1981	72.9	***	27.1	13.34
	1982	56.6	43.4	***	14.77
	1983	55.6	44.4	***	14.59
	1984	61.2	38.8	***	13.25
	1985	54.3	45.7	***	15.33
	1986	45.5	54.5	***	16.73
	1987	54.7	45.3	***	15.58
Midwest	1979	34.8	36.7	28.5	16.10
	1980	72.5	***	27.5	14.10
	1981	73.3	***	26.7	13.23
	1982	58.3	41.7	***	14.36
	1983	55.7	44.3	***	14.57
	1984	49.8	50.2	***	15.89
	1985	47.1	52.9	***	17.09
	1986	67.6	32.4	***	11.64
	1987	60.4	39.6	***	14.18
West	1979	29.8	42.4	27.9	16.33
	1980	66.4	***	33.6	15.87
	1981	63.9	***	36.1	15.82
	1982	56.0	44.0	***	14.92
	1983	51.2	48.8	***	15.61
	1984	47.6	52.4	***	16.39
	1985	52.5	47.5	***	15.77
	1986	76.6	23.4	***	9.57
	1987	61.7	38.3	***	13.86
US Totals	1979	32.0	40.7	27.3	15.99
	1980	68.2	***	31.8	15.36
	1981	68.3	***	31.7	14.62
	1982	55.6	44.4	***	15.03
	1983	54.1	45.9	***	14.95
	1984	53.2	46.8	***	15.10
	1985	51.6	48.4	***	15.99
	1986	58.3	41.7	***	13.78
	1987	55.6	44.4	***	15.37

(a) Simmons segmented tennis use levels in 1979 by three groups ("light" - 1 to 4 days; "moderate" - 5 to 19 days; and "heavy" - 20 or more days). In 1980 and 1981, Simmons segmented tennis use levels by two groups ("light/moderate" - 1 to 19 days and "heavy" - 20 or more days). From 1982 through 1987, Simmons segmented tennis use levels by two groups ("light" - 1 to 9 days and "moderate/heavy" - 10 or more days). Source: Simmons Market Research Bureau, '79-'87.

Discussion

An examination of the market share of different types of agencies within the Northeast revealed specific patterns and trends. While not all inclusive, some discussion points are raised here. They are grouped into the following areas: agency market share performance, marketing implications, limitations and recommendations for future study.

Agency market share performance. The findings of this study indicate how different agencies have performed over this time-frame. Some of the reasons, consequences and speculations to the cause of agency performance are presented here.

This study revealed that specific types of agencies were market share leaders in the Northeast. In golf, daily fee courses have held the largest proportion of all participation days played for the majority of years within the period of 1979 through 1987. However, the performance of the daily fee providers as the market share leader for golf has not been spectacular. The daily fee share has declined steadily since 1983. In tennis, the market share leaders are less obvious. Public agencies were the market share leaders for tennis for four of the years examined here, but the "other" category, a collection of different types of private facilities and "do not recall" somewhat clouds the picture. Since it is not possible to break out the "do not recall" number from the other category, no real pattern could be established for this group. The market share performance for tennis in the Northeast is different. After an initial decline early in this period, public agencies have generally held a rather stable market share position in the Northeast. This suggests that the marketplace for golf is more volatile and the marketplace environment for tennis is more stable although the activity is in a decline pattern.

The market environment for the provision of golf in the Northeast does not reflect the national trends. At the national level, the market share leader for golf has not been easy to identify. The market leader for golf for a number of the earlier years was the daily fee provider at the national level (Warnick and Howard, 1990). However, in some years, public agencies held the market share lead. By 1987, country clubs had clearly taken over the lead at the national level. In contrast, in the Northeast, country clubs have held the second largest share of all golf played for five of the years examined here. During the period of 1983 to 1987 in the Northeast when there was a steady decline in the proportion of play at daily fee courses, there was a corresponding increase in the proportion of golf played at country clubs, private clubs and even public facilities. There were exceptions in 1987 for private and country clubs when their share declined and in 1984 for public agencies when their share declined. This suggests that as the market for golf has grown during the 80s, many players have moved away from the daily fee courses (as is reflected in the national trends) but not necessarily away from the public facilities in the Northeast. Many of these golfers appear to be moving toward playing golf at country clubs, private clubs and "other" private facilities, but demand has remained stable and even increased at public facilities. One might speculate that some golfers have indeed "traded up" from daily fee facilities to more exclusive private facilities and perhaps many of the new golfers have elected to play at public facilities. However, it is not entirely clear if this is the case. The patterns at the national level indicated a movement away from both daily fee and public facilities. This pattern

is not totally reflected in the Northeast. Only the movement away from the daily fee courses is supported in this region. Other speculations as to the reasons for different market patterns in the Northeast must also be mentioned.

Public facilities in the Northeast may enjoy a unique position in the marketplace. The dense population in this region has made it somewhat more difficult to acquire the large tracts of land necessary to construct new facilities. In such cases, the public facilities, particularly in densely populated urban areas in the Northeast corridor, are more likely to be impacted by the increased popularity of the game. This would lead to the more stable and increasing market share pattern which is represented in the data here. On the other hand, it may be possible that more of the daily fee courses have been converted to private clubs. However, because supplier information on the number of different types of courses in the Northeast is not available, it is not possible to determine if this is indeed occurring.

The findings within the Northeast do support the national finding that the competitive offerings of the private clubs are appealing to more participants. More participation is occurring at private facilities. Although it may be debatable if the quality of these private facilities is better, participants may be attracted to private facilities because more amenities are provided.

The marketplace for tennis in the Northeast also differs from the national trends. At the national level, public agencies are the clear market share leaders, but their position has been one of decline throughout the 80s. The continued decline in position has not occurred in the Northeast for tennis. In fact, the market share provision for tennis by public agencies in the 80s has actually improved from 1982 though 1986 in this region. However, the increase in market share does not translate to more tennis play at public facilities. Tennis is in a declining market condition in the Northeast. Even though, public facilities are gaining market share in percentage terms, the actual number of tennis participation days was declining during this period. In other words, the public agencies were gaining more of the declining tennis market. The rapid growth of country clubs and private club provision of tennis did not occur in the Northeast as it did at the national level.

Finally, one additional market issue related to the distribution of players within the Northeast when compared to other regions and the national level must be mentioned. First, for a number of years the distribution of players by moderate/frequent and light categories has differed by region for golf and tennis. For example, the distribution of golf players in the Northeast has differed dramatically from the other regions. While it is difficult to understand why this is so, a number of reasons may be put forth. First, the rate of play is indeed higher in the Northeast than in the other regions for a number of reasons. One may be that the season for golf is shorter in the Northeast than in other regions. Penned up demand may lead to increased play rates. A second reason is that perhaps golf is a much older recreational activity in the Northeast than in other regions. An area that has older and perhaps more well established courses and perhaps an older player population may yield the higher volume rates and larger proportions of frequent players. Third, a more dense population and more compact geographic region may find larger portions of the golfing population within closer proximity to more golf courses. This in turn may lead to higher rates of play. Similar market

conditions in the differences of the distribution of tennis players also exist in the Northeast.

Marketing implications. From these findings, several marketing implications are discussed. First, public agencies need to more aggressively position themselves in the public's mind as a market leader for tennis and for golf in the Northeast. It is not clear that public agencies have recognized or promoted their position within the market place well. Public agencies need to seize the opportunity to attract and keep first time consumers in both activities.

The market share decline experienced by daily fee facilities in golf also suggests that these agencies may have been reluctant to implement marketing strategies which serve to maintain or build market share. Agencies must move to monitor and identify these growth markets if they expect to maintain or build market share. The implementation of customer retention strategies is important for daily fee facilities. It is less costly to retain old customers by improving the quality of the activity services delivered and providing more options for the customer to select from than to try and constantly attempt to attract new customers.

Marketers of these recreational activities should also use these type of data to monitor product life cycles. The information presented here indicates that market size and or market share trends for a specific type of agency do not necessarily follow national trend patterns. When market share data were examined, market share and market size were found to peak and decline at different times between different suppliers. Managers may also want to use market share data with demand and supply analysis to identify agency needs.

Limitations. There are a number of limitations to this study which must be recognized. First, nine years is still a relatively short amount of time. While some patterns of change were easily identified by market share analysis, other patterns were more difficult to identify. This study, for the most part, is largely a descriptive study of past trends. The ability to project into the future was not undertaken here. Furthermore, the shortage of available data makes it difficult to undertake any projection techniques. However, this study has improved upon the examination of the data over shorter periods and provides one of the first descriptions of nearly a decade's worth of activity participation and agency performance trends within a specific region.

While Simmons' market data offers many opportunities for the review of data over time, the quality and the form of the data also limit how it may be examined. The data, where available, are only presented in tabular form. Individual respondent data are not available. This severely limits the types of statistical analyses which can be performed on the information. Unless individual case data becomes available, analyses will be limited to descriptive statistical procedures. However, by examining recreation participation and market share information on an annual basis such as Simmons provides, agencies should be able to be much more responsive than examining data on an infrequent basis or not at all. Simmons also indicates that some of the data when used to estimate the size of various markets is highly unstable. This is due to low response frequencies within some categories. It was not a critical problem in this study, but is recognized that the more the data are broken apart and the finer categories of information are examined, the less reliable the data become.

In previous studies market share analysis studies (Warnick and Howard, 1985 and Warnick and Howard 1987), no attempt was made to adjust market share data by user types and different volume rates. In this study, for the first time an adjustment to the rate of play was made by region. As noted earlier, rates of play to vary by region. In some cases, these rate variations are substantial. However, a major limitation to the analysis of Simmons' data is that the adjustments do not extend far enough. The analysis presented here assumes that golf and tennis players continue to play at the same rate within the region regardless of the type of the facility at which they play. It is very doubtful if this assumption holds true and is a severe limitation. Initial information, both in this study and within the national market share analysis study indicates that different types of users are likely to use different types of facilities. For example, it is highly likely that many first time users or "light" users visit public or daily fee facilities. It may be safe to speculate that a disproportionate share of the clientele of the public or daily fee facilities are "light" users. If this is so, then the use or volume rates for public or daily fee facilities would be expected to be very much different from those of the private or country club facilities. While, this assumption (the constant play rate across all types of facilities) is indeed a significant problem, the adjustment to the volume rates must be considered as noteworthy improvements over previous analyses. Furthermore, the problem of double counting participants (players who participate at more than one facility) can not yet be overcome. This has certainly yielded over-estimation of play at some facilities. Whether the pattern of play among participants is actually different than reported here with the appropriate adjustments is debatable. Unfortunately, this will not be known until improved data manipulation techniques are available.

Data were examined here at the national level and within the Northeast by supplier. Differences also exist at the subregional or state and local levels. Managers need to verify such trends at these levels. This analysis examined market shares by categorizing the type of providers into the broad categories. At the local and regional levels, individual corporate or agency market share analysis should and may occur.

Recommendations for further study. It is essential that annual market share analysis continue to occur in the future at both the national, regional and local levels. It is difficult to understand how agencies can survive in an increasingly more competitive environment for the provision of most recreational activities without market share analysis as part of an on-going market information system. Agencies must be committed to the collection of information in a more timely and systematic manner if this is to occur. More information is still needed to more adequately market, promote and provide appropriate quality opportunities for golf and tennis at all levels and by all types of agencies. Certainly much more analysis is needed to monitor the quality of play for both of these activities.

Conclusion

The findings reached by analyzing market share data do indicate patterns exist and market conditions are changing within the Northeast. There is also an indication that differences exist between agency types, when one examines market share and participation volume. Market share trends within the Northeast do not necessarily follow national trend

patterns. While it is important to monitor these data over time, it may be misleading to heavily weigh one's marketing decisions strictly on national trends. The Northeast is a unique region for golf and tennis not only by the distribution of play at various facilities, but also by the volume of play when compared to other regions. A combination of the regional and local market share analysis and target market analysis is necessary to provide the better insights for marketing golf and tennis.

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